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THE

RURAL ECONOMY

Henry C. Taylor.

OF THE

WEST OF ENGLAND:

INCLUDING

MINUTES OF PRACTICE,

IN

THAT DEPARTMENT.

By Mr. MARSHALL.

THE SECOND EDITION,

WITH

MANY IMPROVEMENTS,

AND

CONSIDERABLE ADDITIONS.

IN TWO VOLUMES.

VOL. II.

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WORKS, written by the same AUTHOR; and to be had of the PUBLISHERS of THESE VOLUMES; namely,

The RURAL ECONOMY of NORFOLK;

The RURAL ECONOMY of YORKSHIRE;

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The Map to face the title-page of Vol. I.

The plate of Roads to face page 336 of Vol. II.

For sig. D D of Vol. II. see sig. A.

DISTRICT THE FIFTH.

THE

VALE OF EXETER.

THE information I obtained, respecting this highly favored District, and its Rural Practices, arose in TRAVELLING repeatedly through its central parts, in different directions; in examining at different times, the ENVIRONS of EXETER, TIVERTON, and HONITON; and in going over that part of the DRAKE ESTATE, which lies within its limits. The Western part of the District, the neighbourhood of CREDITON, is the only part which has not engaged more or less of my attention *.

As the materials, which I occasionally gathered, lie scattered in my Journals, I will here collect them into the Register form; as being best calculated to give a comprehensive

* In 1803, I had a favorable opportunity of seeing this quarter of the Vale. See Vol. I. page 376.

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sive idea of this interesting passage of country; which deserves a more minute examination, than I have been able to bestow upon it. However, in general Management, or Style of Husbandry, it resembles so much the other parts of Devonshire, which have been more closely examined, that a minute detail is the less required.

A GENERAL VIEW OF THIS DISTRICT.

SITUATION. This natural District is more accurately defined, than are many other Divisions of the WEST OF ENGLAND. It accompanies the Exe and its estuary, from the sea to the Tiverton hills, which form its Northern boundary. This boundary is continued, towards the East, by Black Down, to the Heights of Honiton; the Southeast quarter being contracted, by a range of barren high lands, between the Otter and the Exe. The West side of the estuary of the Exe is, in like manner, contracted, by Hall Down, and a continuation of the same range of Heights, to the North of Exeter; where the Vale spreads Westward, to the neigh-

bourhood of Crediton: its Western boundary being the slatey Heights that are crossed between Exeter and Okehampton; and which will be described in No. 49 of the following Minutes.

EXTENT. The irregular windings of the outline of this Vale District render it difficult to calculate its contents, with exactness. If I were to risk a random estimate, it would be, that, including its marginal banks, and some unproductive hills which rise in its area, it contains about two hundred square miles of surface.

ELEVATION. This is by far the least elevated extent of surface, in Devonshire. It may be termed a Vale District; especially the central and more Southerly parts of it. It is overlooked by lands of much greater elevation, on almost every side.

SURFACE. There are two modes of examining and judging of the surface of a Country, like that which is now under notice. Its more prominent features, and greater variations, are best observed, from the eminences which overlook it: its smaller inequalities, by travelling across it.

I have had abundant opportunities of examining the Vale of Exeter, in both these

ways. From Black Down, and other Eminences of the Eastern Confines,—from the Halldown Hills, on the opposite side,—from the Tiverton Hills on the North,—and most especially from an insulated Hillock, a mile or two to the North of Exeter—namely, STOKE HILL—(from whence almost every square mile of its surface is commanded), I have seen its greater variations; and, by travelling between Honiton and Exeter; Honiton and Nutwell, on the Eastern banks of the estuary, below Topsham; between Nutwell and Exeter, by different roads; and between Exeter and Bradninch, Collumpton, &c. to Taunton; I have had opportunities of observing its minor inequalities.

On the whole, it may be said of this District, that altho it partakes more of the character of a Vale, than any other part of the County, it is barely entitled to that distinction. Between Tiverton and Exeter, it is set with prominences of considerable magnitude, obliterating, in some points of view, the Vale character; and between Exeter and Collumpton, much billowy surface intervenes: nevertheless, between Honiton and Exeter,—round Ottery, the Clysts, and along the Eastern banks of the estuary towards

Exmouth, and in the environs of Exeter,—we find much true Vale country: deep rich soil, lying with a surface, sufficiently elevated, and sufficiently varied, to admit of mixed cultivation; with a portion of low flat lands, adapted to the production of perennial herbage.

CLIMATURE. The frequency of rain, which too often renders West Devonshire uncomfortable to live in, and ungenial to Agriculture, is much less experienced in the Vale of Exeter. The passing vapors, which are sufficiently buoyant to elude the attractive powers of the more Westerly mountains, travel undisturbed over this passage of depressed surface; whose climature appears, by the opportunities I have had of observing it, whether in the Spring, or in the Harvest months, to be forwarder, than that of any other part of the WEST OF ENGLAND, which has particularly engaged my attention.

The winters of this, as well as of the more Western Districts, are mild, compared with those of the central and Northern parts of the Island. In the neighbourhood of Exeter, Grass may be said to grow, freely, through the winter months; at least, in moderate winters: and the Myrtle is well known to

flourish in the open air of this mild climate, as a naturalized evergreen.

WATERS. The EXE, and its fine ESTUARY below Topsham, are its chief waters. But two principal branches of the EXE, the CULM and the CREEDY, divaricating East and West, and a portion of the OTTER, with their numerous branchlets, water the interior of the Vale. At Tiverton, the Exe has barely acquired the River character; and even at Exeter, it ranks low among the Rivers of the Island.

SOIL. This varies exceedingly, and shows the District which it covers to be formed with masses of various origins, or compositions.

This diversity and intermixture of soils will best appear, in detail, as they fell under my observation.

HONITON TO EXETER. The soil varies: much deep strong good land. Part brown; part strongly tinged with red:—the first red soil observed, in entering the West of England, by the Bridport road.

About OTTERY, and in different parts of the area of the Vale, a sandy carrot soil is prevalent.

ENVIRONS OF EXETER. The soil round the

Town is a redish, deep loam, of an extraordinary quality. To the North of the Town, it varies in productiveness, with the substrata. Where the slate rock does not rise too near the surface, it is productive to the summit of the highest swell. On the South, between Exeter and Topsham, a rising ground, of some extent, exhibits arable land of the first quality: Wheat, Beans, and Flax, luxuriating on some parts of it; other portions of it being of a lighter weaker quality. Much of the red soil, in the neighbourhood of Exeter, is of a strong, argilaceous, binding quality; and, as such, differs essentially from the ordinary soil of the more Western parts of the County.

ENVIRONS OF NUTWELL *. The soil is various: some strong red land; much dark, pebbly loam, of a tolerable quality; and much thin gravelly soil. At the feet, and hanging on the sides of the marginal heights, above Lympston and Woodbury, a cold weak woodland soil prevails.

EXETER TOWARDS TAUNTON. The hills, in general, are of a sandy nature; light turnep and

* The residence of the late Sir FRANCIS DRAKE, now of my Lord HEATHFIELD.

and Barley soil. In the intervening passages of Vale land, a strong red loam is prevalent; —good wheat and bean soil. About Bradninch, is a rich valley of grass land.

Environs of Tiverton. The soil in general red, and much of it of a superior quality: towards Maiden Down, through Halberton, three or four miles from Tiverton, is a passage of red-soiled rich Vale country.

Crediton, and to Exeter. Round Crediton, as about Tiverton and Exeter, a fertile red soil prevails; the three principal Towns of the Vale being, in this respect, alike situated. These rich red lands occupy the base of the Vale to within three miles of Exeter; where a passage of pale slatey soil, similar to that which characterizes the more Western parts of the County, intervenes, between the red lands of Crediton and those of Exeter.

SUBSOILS. The strong red soils mostly cover strata of clay, loam, or gravel, of the same or a similar color. The strong brown soils are likewise incumbent on brick earth, or on gravel of a kindred hue. The rich productive lands, round Exeter, Crediton, about Tiverton, and in other parts of the area of the Vale, have a peculiar kind of clayey gravel for their bases; which, in some

instances, hardens into a sort of pudding stone, firm enough for a building material; and, in some places, as on the banks of the Exe, a cleaner gravel is observable. The subsoil of the plot of pale land, which occupies part of the Northern environ of Exeter, is of a slatey nature; similar to the ordinary substrata of West and South Devonshire: and it may be noticed, that this,—namely, Stoke Hill and its marginal skirts,—is, I have reason to believe, the most Easterly fragment, or detached mass, of schistous or slatey ground, in this part of the Island. The prevailing subsoil of the area of the Vale, especially of its rising grounds, is a red sand. And, in an instance between Tiverton and Maiden Down (and also near Exeter), a variegated substratum is seen; composed of thin layers of red and white loam and sand; resembling what is observable in Glocestershire, and under the red lands of Nottinghamshire. These circumstances plainly show, that the Vale of Exeter is composed of various materials, and of course exhibits a variety of lands.

General Remark.—This intermixture of lands is seen, in an interesting point of view,

from the insulated hillock, just mentioned, in the neighbourhood of Exeter.

The deep rich Vale lands are thickly set with HEDGEROW ELMS, pruned up to poles, and rising in close order, as we see them in the Vales of Glocestershire, and on the rich deep lands in the neighbourhood of the Metropolis! Has this species of produce, and this peculiarity of practice, risen spontaneously out of the nature of the lands? or has the tree, and the method of treating it, been imported from the Continent, established on the banks of the Thames, and from thence transplanted to those of the Severn and the Exe?

On the POLITICAL DIVISIONS of this District, I find few remarks: except what relate to the sizes of TOWNSHIPS;—which appear to be smaller than what I have observed in the other parts of Devonshire: a circumstantial evidence, this, among others which will be adduced, that the fertile Vale under notice was early *cultivated*, and thereby acquired an early population.

PUBLIC WORKS. The only INLAND NAVIGATION, which this District at present enjoys, is that of the Estuary of the Exe, to Topsham; with an artificial Navigation, from

thence to Exeter. And, perhaps, the only CANAL that could be prosecuted with profit, to the County at large, would be one from Exeter, by Crediton, to Okehampton, there to join the one proposed, between Biddeford and Plymouth. (See p. 337.) And even this I suggest with diffidence, from my not having sufficiently traced the ground, in detail. The *Line* is, in every respect, what could be wished. If this triple Canal should be executed, Devonshire might, with good reason on her side, boast of her acquired, as well as of her natural advantages. Possessed of such a public work, she would stand unrivalled in facility of internal transfer: there would scarcely be a farm in the County, situated at more than one day's journey of a team from water carriage;—an accommodation, whether in bringing in manures, or carrying off produce, which no other County, I believe, can claim; and which, in a Country where wheel carriages are, in some cases, difficult to use, would be an advantage to the LANDED INTEREST, scarcely to be calculated *.

The

* 1804. This great work may be said to be begun! Canals to Tavistock and to Crediton are now executing.

The Roads of the Vale are most remarkable for their closeness; narrow lanes, confined with mounds, and overhung with trees and coppice wood. This charge, however, does not lie, invariably. The more public Roads are, in general, well formed, and, in some instances, well kept *.

The State of Inclosure is the same, here, as in the other Districts of the County. The appropriated lands are universally inclosed: a few rough summits of hills, apparently commonable lands, remain open.

This State of Inclosure is probably of long standing; and, from the smallness of the fields, observable in many parts of the Vale, especially round Exeter and on the Eastern banks of the Estuary, it is reasonable to suppose that those parts, at least, were early inclosed. What serves to corroborate this idea, the mounds of the hedges are lower, here, than

* I must not omit to notice an extraordinary instance of persevering obstinacy, in the trustees or managers of the road, from Exeter to Starcross (between Alphington and Exminster), where the road leads over the summit of a steep knoll of considerable eminence, while its level base offers a *shorter line!* A *reason*, however, has been given for this irrational conduct; but it is too ridiculous to be related!

in the Ham Districts; and are, in general, furnished with Timber Trees.

The PRESENT PRODUCTIONS of the Lands of the Vale are chiefly ARABLE CROPS and HERBAGE; with a profusion of HEDGE-WOODS; and some ORCHARD GROUNDS; but with very little WOODLAND, in the area of the Vale; not even in the more hilly parts of it.

Nevertheless, the District, I understand, does not supply itself fully with grain; at least, not with WHEAT; which is imported, occasionally; and chiefly, I believe, from the Isle of Wight. But the Country is populous. The Serge Manufactory employs many hands throughout the District, finally concentering at Exeter. And, on the Eastern banks of the Estuary, at least, lace-making is a prevalent female employment. Yet, of DAIRY PRODUCE, the Vale is enabled to send some supply to the Metropolis.

Of the present STATE OF SOCIETY, in this District, I am prepared to say but little.

The TOWNS, in general, are populous, cheerful, respectably built, and well situated. The situation of Tiverton is singularly fine.

The COUNTRY HABITATIONS are generally mean in their appearance, from the nature of

the materials of which they are almost universally constructed; namely, red earth and thatch. The neatness of the latter, however, is such as to render this species of covering more tolerable and less improvident, here, than it is in countries where straw is beaten to pieces with the flail, and laid on with less accuracy, than is the "reed" of the West of England. Earthen walls, rough cast, and covered with a reed roof, form a neat and comfortable habitation.

The EMPLOYMENTS of the Inhabitants are chiefly those of *Husbandry*, and the same branch of the *Woolen Manufacture* which prevails throughout the County: SISTER EMPLOYMENTS, which ought to prevail, more or less, in almost every District of the Island.

Of the FACE of this fair COUNTRY it were impossible to say too many fine things. But, as its goodly features might lose much of their force in my description, I will briefly set it down at what its own Inhabitants believe and assert it to be—"the richest finest Country in the world."

THE

RURAL ECONOMY

OF

THIS DISTRICT.

MANAGEMENT OF ESTATES.

THIS branch of rural affairs is conducted nearly in the same manner, here, as in the more Western parts of the County. Nevertheless, a few differential particulars merit notice: as, first,

THE DISTRIBUTION OF FARM LANDS. There needs not better evidence of the first Laying out of Lands, in this District, being different from that of South Devonshire, than the smallness of Fields, and the intermixture of Farm Lands, observable in the Vale: at least in that part of it which I had the best opportunity of examining; namely, the Eastern banks of the Estuary; which, in these particulars, might vie with East Norfolk;—especially on its lower margin.

Whether this intermixture of small fields has arisen from the lands having been distributed,

buted, originally, among small hand-labor husbandmen, or from their having been once in a state of common arable fields, as in other parts of the Kingdom, and have been kept in that intermixed state, by the nature of life-leasehold, is a point which, probably, might now be difficult to ascertain.

Where the lands still remain under that restraint it might be difficult to do away the evil, entirely. But, where they are free from that tenure, the impropriety of suffering them to remain in so unprofitable a state, rests with the Proprietors and Managers of Estates.

Of the FARM BUILDINGS of the Vale, little is required to be said. They are, in general, without plan, and meanly built: earth and straw being the chief materials. Even the farm yard fences are of "cob:" in some instances raised eight, ten, or more feet high; with folding doors, wide enough to admit laden pack horses; and with lean-to sheds, perhaps, on the inside: thus forming comfortable straw yards, at a moderate expence.

The favorite material of these walls appears to be the strong red loam, mixed with gravel, which has been mentioned, and which ac-

quires, in drying, a stonelike hardness. "If kept dry, it will stand for ever."

This material of building (namely, earth of various sorts, mixed with straw, under the general name of *cob)* has been used, here, time immemorial. Barns and dwelling houses, of almost every size, are built with it. The walls from fourteen inches to two feet thick; the flues of chimneys being carried up with the gables, as in building with stones or bricks *.

And another material of rough buildings is what might be called *natural cob;* namely, the red grout or pudding stone, aforementioned; which, especially in the South-western environs of Exeter, is in pretty common use.

HEDGEROWS. In this respect, too, the inclosures of the rich deep lands of the Vale resemble (or lately resembled) the wood-bound Pightles of East Norfolk.

The Elms of the Hedges have been already noticed. Oak Pollards are in great number, and, in some parts, Oak Timber Trees stand

* There is one instance, at least, in this District, of a considerable mansion, or villa, three stories high, being chiefly built with this material. I understand, however, that the attic story is mostly of wood.

thick on the Hedge banks, or grow out of their sides, or at their bases; with Coppice wood rising between them; as in Kent, and other Districts.

This, however, is more particularly observable, on the cooler woodland soils, on the Southeastern banks of the Vale;—which have probably been inclosed from the woodland state.

I mention this circumstance the rather, as it forms one of the distinctions, which mark this more Eastern District, from North and South Devonshire.

WOODLANDS.

ON this subject, nothing peculiar struck me, except what relates to the improper treatment of TIMBER TREES. The boughs, not of the ELM only, but of the OAK, are hacked off, for fuel! A practice which is not confined to HEDGEROW TREES. I have here seen it extended, for the first time, to GROVE TIMBER! OAK WOODS!

A practice so destructive of private property, and public benefit, can only have arisen in a scarcity of fuel, or in the rapine of tenants, and the neglect of those who

should restrain them. Indeed, I would hope that the practice is not universal; at least with respect to Wood Timber; but is confined to the estate which I more particularly examined.

The practice of pruning off the side boughs of Hedgerow Elms is a venial crime; provided it be not deferred too long from the last cutting. In the more valuable applications of the Elm, knottiness of texture is a desirable quality. But in most, or all, the uses to which the Oak is applied, a cleanness of grain is its best recommendation.

AGRICULTURE.

FARMS. From the sizes of Farmeries, and the appearance of FARMERS, this District resembles the rest of the County, in the SIZES of its Farms.

BEASTS OF LABOR. In this respect, too, the Vale of Exeter is truly Danmonian. OXEN are used in plowing; PACK HORSES in carriage of every kind; even to the gates, and within the streets of Exeter. I have seen, in its immediate environs, dung setting about with "horse and potts*." In this

* See Vol. I. p. 125.

instance, three horses, with a man to fill and two boys to drive, formed the sett. The distance fifty to a hundred yards. The dispatch far from inconsiderable.

IMPLEMENTS. Still we find ourselves within the limits of Danmonia. The PLOW is more truly heraldic, here, even than in West Devonshire. The body longer, and the beam shorter: the end of the beam merely shooting before the point of the share!

PLAN OF MANAGEMENT. In the ARABLE CROPS of the Vale, we find a deviation from those of the more Western Districts:—arising, no doubt, from an alteration in the quality of the soil. On the strong cold lands, in the area of the Vale, *Beans* are a common crop; and, on the richer deep soil, *Flax* is sometimes grown. And, perhaps, in this part of the County, a greater proportion of Cows are kept for the BUTTER DAIRY. But, in other respects, I have detected no obvious marks in the outlines of Management, which distinguish this from the more Western Districts of Devonshire: excepting what relates to the practice of "Burnbeating;" which I believe is not, here, in use, at present.

MANURE. The same roof shaped heaps of LIME COMPOST, that are common in South

Devonshire, are observable in the Vale of Exeter. The upper parts of the Vale are supplied with Lime, from the borders of Somersetshire; the central and Southern parts, with stones, by water; chiefly from Berry Head: these being burnt, on the banks of the River or the Estuary, in the manner of West Devonshire.

I have seen no traces of the SHEEP FOLD, in this or any other part of the County.

WHEAT is here grown on narrow ridges, as in West Devonshire, &c.

All the BEAN CROPS, that I observed, were raised in the random or broad cast manner.

TURNEPS. The HOING of Turneps is coming into practice, in the Vale. I have observed, in different parts of it, clean good crops.

GRASS LAND. In the Management of Grass land, there is nothing striking, or remarkable. Irrigation is more or less in use, in particular situations: but not generally, nor with the uniform effect, which is experienced from the slate-rock waters of the more Western parts of the County.

ORCHARDS. Many small Garden Orchards, and some of a larger size, are scat-

tered, in every part of the Vale. In the Environs of Tiverton, I observed some full-sized Orchard Grounds; which, however, are still Danmonian. But, as the borders of Somersetshire are approached, the stems are seen to encrease in length.

CATTLE. This being a Dairy, rather than a Breeding District, a mixture of breeds may be expected. Nevertheless, in the more remote parts of the Vale, I have observed different instances of fine Cattle, of the pure North-Devonshire variety.

In the neighbourhood of Exeter, many Alderney, or "Guernsey Cows" are seen; being frequently imported from thence: and a mongrel sort, between those and the Devonshire breed, are not uncommon.

THE DAIRY. The produce of the Dairy, here, as in West Devonshire, is BUTTER and SKIM-MILK CHEESE.

This species of Farm Produce has encreased, of late years; the butter, even of this extreme part of the Island, being now sent, in greater or less quantity, to the London Market.

Nevertheless, the CLOUTING OF CREAM still remains a prevalent practice in the Vale; in which, however, many "RAW-CREAM DAIRIES" are now established: and, as the prac-

tice of raising cream, or suffering it to rise, in the natural way, has gained possession of the DAIRY DISTRICT (which will presently be described), on the Eastern banks of the Vale, there will be little risque in predicting, that it will require no great length of time, to extend itself over the area. How long it will afterwards take, to climb over the Western banks, into South Devonshire, is much more difficult to foresee*.

What farm-yard SWINE I have observed, in the Vale, are of the same tall white sort, which appears to be common to the County.

SHEEP. The Ewe Flocks of the Vale, are chiefly of the HOUSE-LAMB BREED.

But the more ordinary stock of the smaller Farmers are bred on the Heights about Tiverton; and are the same variously headed race, which is common to all the high lands of Devonshire and Cornwall; or on the richer inclosed lands, about Bampton and Dulverton; these being a larger longer-wooled, polled, grey-faced Breed; similar to the prevailing

* 1804. The scalding of milk, to raise the cream, still continues to decline in this Vale. In the same village, different dairywomen pursue different practices; and even in the same dairy, the season, the quantity of milk, or other circumstance, may alter the practice.

vailing sort, about Totness, in the South Hams: all of them being, evidently, different varieties of the aboriginal, ancient, or mountain Breed of this part of the Island.

The latter variety is more particularly seen on the richer grazing lands, and the marshy grounds below Exeter. So commonly do soils invite congenial stock.

DISTRICT THE SIXTH.

THE

DAIRY DISTRICT

OF

WEST DORSETSHIRE,

&c. &c.

Introductory Remarks.

The passage of country, to which I have given this appellative distinction, is at once NATURAL and AGRICULTURAL. Natural, as possessing a peculiarity, as well as a uniformity of style, in the formation of its surface;—agricultural, as having the same leading object, in its plan of Rural Management.

Nevertheless, I was led to an examination of it, by circumstances more fortuitous, than those which attended the surveys of some of the other Districts, noticed in these Volumes.

In my first journey, into the WEST OF ENGLAND, being struck with the appearance

of the country about Bridport, I stopt a few days to examine it; and went over it, some miles round, on either side: thus gaining a competent knowledge of the Eastern part of the District, and a general idea of its Rural practices. In passing, repeatedly, between Bridport and Honiton, I have had opportunities of seeing something of the center of the District. And, in travelling between Crewkern and Chard, and afterwards taking a deliberate view of the DRAKE ESTATE, lying in the Valley of Yarcomb, I had a favorable opportunity of examining, in detail, its more Northern parts: thus gaining a comprehensive idea of the whole District; excepting its Southwestern or Coliton quarter*.

In giving a comprehensive view of this Division of the West of England. I will briefly digest the particulars that struck me, in the different views which I have taken of it; and first of the

DISTRICT.

THE SITUATION, OUTLINE, and EXTENT of this irregular passage of country are these:

* 1804. This part I have, since, repeatedly travelled through. See MINUTE 51.

in form, it approaches the triangle nearer than any other regular figure. Its base is the sea coast, between Sidmouth and Bridport; its Northern angle being sheathed in the Black-Down Hills. The Vale of Exeter and the Valley of the Otter form its principal boundary on the West (see MIN. 51); and the Vale of Ilchester (see MIN. 58) on the East: the Beaminster Hills, and the Chalk Downs of Dorsetshire, being its Southeastern confine. The extent of the base is somewhat more than twenty miles; and that of its perpendicular line more than fifteen: its area may therefore be estimated at one hundred and fifty to two hundred square miles.

THE ELEVATION of its higher grounds is very considerable. They rise from the sea by steep cliffs, some of them of great height; especially in the Lyme and Bridport quarter. The swells are mostly high upland; some of them sufficiently elevated to be denominated heights. But the degree of elevation of the Valley lands, above the seas, is small: the rivers, tho not tame, being by no means rapid.

THE SURFACE of this District is most strongly marked; exhibiting the Devonian style, in all its purity.

Immediately

Immediately upon the coast, particularly about Bridport, the hills are many of them rotund, and fertile to their summits; but, farther from the Sea, they are mostly flattened on the top, and comparatively infertile with the wide winding vallies that seem to worm their way in among them; displaying the most broken and "troubled" surface. Still farther towards the Northern margin, the ground breaks into more regular ridges and vallies; branching out, in the ordinary manner of mountain-skirt surfaces.

The wider vallies that have fallen under my notice, are the Valley or Bason of Beaminster; the Valley, or, as it is called, the Vale of Marshwood; the Valley of Yarcomb, and that of Upottery *.

CLIMATURE. In the lower lands of the District, even in its more Northern vallies, the seasons are early. In 1791, Haymaking was at its height, in the neighbourhood of Bridport and Beaminster, the beginning of July; and, in 1794, Raygrass was ready to shoot into head, in the Valley of Yarcomb,

* The VALLEY OF YARCOMB. This Valley contains parts of four parishes, lying in three adjoining counties: namely, Stockland, in Dorsetshire; Whitstanton, in Somersetshire; and Membury and Yarcomb, in Devonshire:—the last comprizing the principal part of its lands.

the first of May. I should conceive it to be, on a par of years, ten days or a fortnight before West Devonshire *

WATERS. Each Branch Valley of the Northern margin has its rivulet or brook; which, collecting, form the upper branches of the Otter, the Axe, and the Brook or River of Bridport: the Axe receiving the principal part of the waters of the District.

SOILS. These vary, in different parts. In the Bridport quarter,—the lower lands are mostly of a superior quality—deep rich loams —throwing out full crops of Wheat, Beans, Flax, and Hemp; and, in this part of the District, the sides and even the summits of the swells and hillocks are many of them well soiled; the best a limestone loam; others of a lighter sandy nature.

But, in the Valley of Yarcomb, and apparently in the neighbouring Vallies, much of the soil is a strong red loam, lying on a cool basis,—Wheat, Beans, and Oak, land.

The soil of the higher hills, throughout the District, is a sandy loam, intermixed with a singular species of stone, a base kind of FLINT; a species of soil, and an accompaniment,

* But see MINUTE 50.

ment, which are not only common to the higher less fertile hills of East Devonshire, but are extended to the Halldown Heights, on the West side of the Vale of Exeter; and which, the flints at least, are peculiar, perhaps, to this part of the Island: I have not observed them in any other*.

SUBSOILS. These are various, as the soils, the passage of country under notice resembling the Vale of Exeter, in this respect. The cool red lands have a strong clayey loam for their base; the rich soils in the environs of Bridport, have either a lighter loam, or a sort of flinty gravel, beneath them: the hills are of sandy loam, intermixed with flints, with here and there a mass of limestone.

FOSSILS. The most useful Fossil production, that fell under my notice in this District, is LIMESTONE; which is raised, not in the neighbourhood of Bridport only, but more or less in other parts of it. Beside being burnt into Lime, it is used as a walling material, as well as for paving Slabs, Drain Bridges, and Stiles; large Slabs of it being not unfrequently set on edge for this purpose. It is also used as a road material. It appears

* The FORMATION of FLINTS is a subject of considerable interest, in NATURAL HISTORY.

in some specimens, as a mass of conglutinated shells; resembling much, in general appearance, the Sussex marble: a species of Limestone dug out of the strong lands of the Weald of Sussex; whereas, this is found on the dry summits of hills.

1804. The above description, however, belongs more particularly to the Limestone which I have observed in the neighbourhood of Bridport. The more prevalent stone of the District is of a smooth texture, mostly free from the remains of shells, and of a blue color, with a white crust; resembling the "Clay Stone" of Glocestershire, &c. &c. and is here known by the name of "Blue Lyas."

Lyme (Lyme Regis) has long been celebrated for its Lime; which is burnt from a stone of the last description. This stone is liable to burst in the kiln, with loud reports, and burns to a fine stone color, with a yellowish cast.

The Lime from this stone sets well in water, and is in other respects valuable as cement; rivaling the far-famed Lime of Aberthaw, in South Wales*: the latter, however, is

* ABERTHAW, on the coast of Glamorganshire.

is allowed to be somewhat stronger; owing probably to the white coats of the stones being worn off by the action of the waves, on the sea shore, where it is gathered. In Devonshire, it is called "Watchet Lime;" the stones being brought from Wales, and burnt at Watchet, on the Northwest coast of Somersetshire.

Another valuable purpose of the Lime of Lyme, which I have lately experienced, is that of an ingredient of roughcast for coating buildings: no *coloring* being required. Nothing, but clean-wash, gravel, water, and this Lime is wanted to form the grout: the natural color of the Lime being most grateful to the eye. And the Limes of other stones of a similar quality, it is probable, are equally applicable to the same use. See GLOCESTERSHIRE, Art. LIME.

On the Eastern borders of this District, several detached masses of CHALK are found. On White Down, between Crewkern and Chard, I observed a chalk pit; and even within the parish of Yarcomb, at its Northern extremity, chalk is likewise raised; but in small quantities. These detached masses may be considered as fragments of

the Western Chalk Hills; and are probably the most westerly collections of this singular and valuable fossil in the Island.

ROADS. The Roads, in the more recluse Vallies, are nearly in a state of Nature: the ancient Horse paths of the Forest state: crooked, narrow, numerous, and full of sloughs.

STATE OF INCLOSURE. The lower grounds are wholly inclosed; the hills, at present, are open; but they show evident marks of their having been, heretofore, in a state of inclosure and cultivation; discovering strong lines, which, on the wide Commons of Yarcomb and the neighbouring parishes, still remain perfectly legible; and which are not yet obliterated on the higher more barren summits, in the neighbourhood of Bridport.

Tradition, in this Eastern District, as well as in the West of Devonshire, speaks of these open neglected lands, as having once been *inhabited*. But this ingenious historian assigns different reasons, for their being abandoned to the neglect in which we now find them. On the Western side of the County, we are told, it was owing to a decreased population; but, on the Eastern, to a widely differing

circumstance. Here, the hills were *first* inhabited; by reason of the Vallies being, in the early stages of society in this Country, so full of Wolves, as to be rendered uninhabitable, by the Human Species. In process of time, however, the latter crept down the sides of the hills; clearing off the wood, as they descended; until at length the Wolves were driven away, or destroyed; the Vallies taken possession of; and the hills, in consequence, given up, for a more fertile soil, and a more genial climature.

This marvellous tale of tradition, whatever may have given rise to it *, seems altogether unnecessary, to explain the phenomenon under notice; as it may be accounted for in a more simple and reasonable way; there being nothing different, in the present appearances of these Commons, from those of the Commons of North Devonshire, that are actually, at this time, undergoing the very operations, which, in all human probability, moulded the faces of those of East Devon-

* Tradition, when it reaches not farther than a few generations, is entitled to every respect, and is frequently good authority. On perilous events, as of war or pestilence, it is able to go much farther back, than it is respecting the ordinary and quiet operations of Agriculture.

shire into their present form; and which, heretofore, left similar vestiges of inclosure and cultivation, on the surfaces of some of the commonable lands of West Devonshire *. The most striking difference between the appearances observable on the Commons of Yarcomb, and on those of Buckland, is, that the lines on the former are much stronger; some of the still moldering hedge mounds having no appearance of being more than a century old; some of them are evidently of more modern date: indeed, encroachments, of a similar nature, are made at the present time.

There can be little doubt, I think, of the truth of the position, that it was once the prevailing practice of Devonshire, to CULTIVATE ITS COMMONABLE LANDS, in a manner similar to what we have seen practised, not only on public Commons, but in private Inclosures, at this time †.

It is reasonable to suppose, that, in early times, the *Ashes* of the sward or coarser covering, were depended on, as manure: and that, afterwards, *Lime* was used, as an additional

* See Vol. I. p. 31, and p. 345.

† See Vol. I. p. 347.

ditional stimulus. And it may be allowable to conjecture, that, through the means of these two powerful stimulants,—without returning any part of the produce, thus extracted, to the soil,—it at length became so much exhausted, as no longer to repay the expence of cultivation. What corroborates this idea is, that the only part in which I have observed the practice continued, to the present day, is that in which Lime is most difficult to procure; and where it may not yet have been obtained in sufficient quantity, to lower the lands to the last stage of exhaustion.

Having proceeded thus far, I must mention, here (tho somewhat out of place), a circumstance relating to the COMMON RIGHTS of East Devonshire: I speak more particularly of the Manor of Yarcomb; whose Commons belong exclusively to the Lord of the soil, and are stocked (without stint) by his own tenants, only. The "lands," as they are emphatically called, of other Freeholders, within the manor, have no right of Commonage! A custom of manors which may have eluded my researches in other parts of the County.

Should it be said, that this circumstance

favors the story of the Wolves, for that these upper lands were private property of their respective Lords, and were thrown up for the use of their own tenants only, I will not gainsay it. I have, perhaps, already done more than my duty; and I leave it to the Antiquary, whose bent leads him to topographical enquiries, to determine the point.

Therefore, returning to what more immediately relates to the subject matter of this Register, I will finally observe, that, whatever may have been the circumstances which led to the inclosure of the Vallies under notice, they were made from the unreclaimed forest state; without the intervention of common fields * or stinted pastures; judging, I mean, from their present appearances; which resemble those of the Inclosures of Kent, Herefordshire, and other Districts; which have been, undoubtedly, inclosed from a state of unreclaimed woodland. The hedgerows are crooked, and furnished with timber; and the banks raised, in *imitation* of those

* It is to be observed, however, that, to the East of Bridport, I saw some faint traces of common arable fields: but in the area or the Western parts of the District, I observed no appearances of that sort.

those of Devonshire; but are much lower than the *altogether artificial* mounds of the more Western part of the County.

THE PRESENT PRODUCTIONS of the Soils of this District are WOOD (chiefly of Hedgerows,——not much detached Woodland), ARABLE CROPS, FRUIT TREES, and HERBAGE; the last being the most prevalent produce of the inclosed lands. The Hills are overgrown with DWARF FURZE, HEATH, and COARSE HERBAGE; a few of the more barren parts of them being occupied chiefly by heath.

THE TOWNS of this District are BRIDPORT on the East, AXMINSTER near the center, HONITON on the West, CHARD towards the North, with different SEA PORTS on the South.

VILLAGES. In this particular, the District under view is strictly Devonian: the Villages, that have fallen under my eye, are inconsiderable; the farm houses and cottages being happily scattered over the areas of the TOWNSHIPS: a circumstance more or less observable, perhaps, in every part of the kingdom, where inclosures have been made from a state of Woodland, or of Pasturage: close arrangements of houses, in the form of

Villages, being most observable, in Common-Field Districts *.

HABITATIONS. The BUILDING MATERIALS, here, are various. Stones of different sorts are in use †; but earthen walls are, nevertheless, prevalent; and, on the whole, the habitations of this Eastern District are much inferior to those of West Devonshire; which far excels the rest of the County, in this particular.

The PRESENT APPEARANCE of the Face of this Country may be conceived, from what has been said, respecting its Surface, its Productions, its State of Inclosure, and the Distribution and Style of its Habitations.

Viewed from some elevated points, where the barren or infertile summits of the hills only

* The LAYING OUT OF TOWNSHIPS, and their PRESENT STATE OF INCLOSURE, are subjects so very interesting to a mind employed in Agricultural Researches, that no apology can be wanting for the Remarks that are interspersed in these Volumes, respecting them; as no other department of the Island furnishes so many striking facts, relating to these subjects, as the WEST OF ENGLAND.

† Large FLINT STONES—perhaps a cubical foot in size—and of the base kind already mentioned—are, in the Northern parts of the District, not uncommonly used as a material of building.

only are seen, it has all the appearance of a Mountain District.

But, in travelling through it, and still more in penetrating its recluser parts, the most striking transitions are produced, and compositions that are picturable are caught. It is observable, however, that the prevailing characteristic of the views of this passage of Country is Beauty, rather than picturesque Effect; differing much, in this respect, from the wilder scenery of the West of Devonshire.

In Circles of Views, this passage of Country abounds. The Summit of the Knoll, the Brink of the Sea Cliff, on the West side of the Harbour of Bridport, is an interesting point; commanding Land and Sea Views of the first cast. On Beaminster Down, one of the widest and richest circles of scenery, this Island affords, is seen with every advantage. In variety, extent, and richness, considered jointly, I know nothing that equals it. To the East, the soft billowy surface of the Chalk Hills of Dorsetshire, even to their farther extreme. To the West, the more rugged mountain summits of Devonshire, with Dartmore rising in the farthest distance. To the North, the rich Vales of Somersetshire, backed by the Quantoc and Mendip Hills,

with a portion of the Bristol Channel breaking in between them. To the South, the singularly broken and beautiful surface, in the Environs of Bridport; the varied summits of the hills giving feature and additional effect to the Bay of Bridport; spreading its ample surface immediately under the eye; its Western Coast being finely broken and varied, by ragged promontories, and bold cliffs; and its Eastern terminated, by the Isle of Portland; with mackrel skiffs playing on the surface of the Bay, and with vessels of burden plowing their way across it.

THE AGRICULTURE OF THIS DISTRICT.

THE leading Object, in viewing it, especially its Northern quarter, being that of catching OBVIOUS IMPROVEMENTS, in the MANAGEMENT OF AN ESTATE, rather than to register the minutiæ of its AGRICULTURE, I am the less prepared to enter into a detail of its practices.

I shall therefore confine my remarks to a few general heads.

FARMS. The distinguishing character of Farms, in the interior of the District, is Grass land. There are many which have very little, if any, arable land; being strictly DAIRY FARMS.

In SIZE, the Farms of this Eastern District are conformable to those of the rest of the County; being mostly of the lower class; with, however, a greater proportion of Farms of size: and, here, it is not uncommon for one man to hold two, three, or more distinct Farms; stocking them with cows, and letting them out to dairymen: a practice however which admits not of commendation; and which will be renoticed.

FARMERS. Even in the most recluse part of the District, I met with some intelligent men. And altho the spirit of improvement may not yet be sufficiently awake, the late memorable change, in the management of the dairy, shows demonstrably, that the rust of prejudice has begun to wear away, and augurs much for the benefit of the Country.

BEASTS OF LABOR. In the interior of the District, OXEN are in use; but, in the Eastern quarter, CART HORSES prevail.

IMPLEMENTS. The only thing that struck me, as excellent or peculiar, in the construction of the Farming Utensils of this District, relates to the YOKE; whose draft iron, or staple, is inserted, not perpendicularly, as it usually is; but diagonally; entering the lower angle of the hind part of the Yoke, shooting upward and forward to the opposite angle; where it is keyed, in the usual manner. This prevents the bend of the bow from bearing too hard against the shoulder points of the Ox, and is theoretically good. Its effect in practice is readily tried.'

PLAN OF MANAGEMENT. In the general outline of practice, observable in the more Northern parts of this District, we find little which specifically differs from that of the County at large. The OBJECTS are nearly the same, and the means used in obtaining them similar. The difference lies, chiefly, with the proportional quantity of each species of produce. In the East, as in West Devonshire, the objects are permanent grass, arable crops, and temporary leys: part of the grass, in both Districts, being applied to dairy cows, for butter and skim cheese. But the proportion of Grass land, and the proportional number of cows, is much greater here, than

than in the Western parts of the County. Of the lower grounds of the Valley of Yarcomb four fifths, perhaps, are in a state of grass, permanent or temporary; and this is chiefly depastured by cows; the number of working cattle being few; and the sheep and young cattle are mostly confined to the hills, and upper grounds.

The ARABLE CROPS of the interior of the District are chiefly *Wheat*, and *Oats;* no *Beans!* and but little *Barley*.

The SUCCESSION is similar to that of West Devonshire: ley ground, partially fallowed for wheat, with one or two crops of oats; grass seeds being sown with the last crop. Some take oats, wheat, oats: agreeably to the practice of the Midland District; whose soil and subsoil are very similar. An interesting fact.

In the more Eastern parts of the District, there are shades of difference observable in the Plan of Management: which, probably, partakes more or less of that of other Vale Lands of Dorsetshire.

But what marks the Rural Management of the Environs of Bridport most evidently, is the culture of *hemp* and *flax*,—to supply the consumption of a MANUFACTORY of SAIL CLOTH

and CORDAGE (from the cable of a man of war, to the finest packing thread), which has long been carried on, there: giving employment to the villagers of the neighbourhood; and, of course, operating as a mutual benefit to Agriculture and Commerce.

MANURES. LIME is more or less in use, throughout the District: being burnt, from the stones that are found within it,—chiefly or wholly, with Welch culm.

Formerly, much "MARL" has been used, in the Valley of Yarcomb; which exhibits "marl pits" of considerable capacity, and old enough to have produced Oaks of a large size; —much resembling, the "marl pits," and the "marl" of the Midland Counties: namely, a red clayey fossil, with scarcely any portion of calcareous matter in its composition. And, what is noticeable, the marl of this District, as that of the Midland Counties, is now giving way to lime: the change, if one may judge from general appearances, having taken place about the same period of time!

1804. The common hard red marls of the Valley of Yarcombare insensible to the marine acid. But a specimen of a softer, more friable nature, I find, yields, by analysis, near twenty

percent

percent of calcareous earth; which is evidently contained in granules of CHALK, that are interspersed among the clay, or substance of the marl. Another specimen which I procured is a coarser mixture of chalk and clay, blended or stuck together. And it is more than probable, that, near the pits from whence these specimens were taken, masses of chalk may be lodged. See page 32.

From the fertilizing effects of these chalky clays, the practice of marling may have taken its rise; and has since been extended, by custom or fashion, to the noncalcareous kinds.

In the Bridport quarter, I observed the SHEEP FOLD, in more than one instance; agreeably to the Dorsetshire practice.

GRASS LAND. Notwithstanding this may be considered as the main object of the District under view, I observed nothing praiseworthy in its Management. In the Valley of Yarcomb, where the soil is tenacious, and the subsoil retentive, the Grass lands, whether permanent or temporary, are injured by superfluous moisture: an injury which is not so much owing to a want of draining, subterraneously, as to their lying too flat, to shoot off, with proper effect, the

superficial waters. The natural consequence is, much of the surface is over-run with superaquatic weeds and the coarser grasses, when it ought to be occupied by nutritious and more profitable herbage.

It is to be observed, that the Spring WATERS which rise in the vallies of this District are of an ameliorative quality; and that they are here, as in West Devonshire, partially, and inaccurately, led over the Grass lands. But those of the rivers, at least of the Yar, are not considered as being of a fertilizing nature; except in the times of floods. Its different branches are partly fed with the astringent waters of the black moory hills that rise on either side of it. But those which issue from the sides of the valley and its branches, and which are probably filtered through calcareous strata, may serve to correct the evil quality of the moory waters; and it is more than probable, that if the united waters of the Yar were properly applied, especially in a dry season, they would not fail of proving beneficial to a wide flat of meadows which lie at hand to receive them.

ORCHARDS are common in every part of the District. I bring them forward, here, merely to say of them, what may be readily conceived,

conceived, that, with respect to the stature of the trees, and the order in which they are arranged, they form a mean between the Orchards of Devonshire and those of Somersetshire. The stems are, here, somewhat taller, than in West Devonshire, but are considerably short of the English standard. And, in the closeness of arrangement, they still more resemble the Devonshire Orchard. I speak particularly of those of the Valley of Yarcomb *.

THE DAIRY. This has been, time immemorial, a Dairy District. Formerly, its produce was CHEESE, made from the neat milk; being, probably, of the Somersetshire kind, sold under the name of BRIDGEWATER CHEESE; some of which I have met with of a very superior quality. The Valley of Yarcomb was noted for its produce, which was known in the Vale of Exeter, by the name of Membury Cheese. Indeed, its soil and herbage are such, as never fail to produce fine Cheese,

* In approaching this District, from the Eastward, the Orchards of Chard were the first that struck me, as partaking of the Devonshire Orchard. The stems shorter than those of Dorsetshire and Somersetshire; but tall enough for young Cattle to pasture beneath the Trees. And the same may be said of the larger Orchards of Yarcomb.

if properly manufactured. It is naturally a Cheese District †.

Nevertheless, of late years, its produce has been changed to BUTTER, for the London market; to which it is sent in barrels or firkins, as from the North of England: a change which has been brought about, by the powerful influence of the London prices, compared with those of the Country.

The SIZES OF DAIRIES, judging from what fell under my observation, rise to thirty or forty Cows. I saw one of near forty. But from fifteen to thirty may be considered as the more ordinary number, even of the larger class of Dairies; and there are of course many of smaller sizes. Among the inferior order of farmers, a Dairy of eight to twelve Cows is looked upon as respectable.

The BREED OF COWS, employed in these Dairies, is chiefly that of the WEST OF ENGLAND; namely, the clean, middle-horned breed, which is common to the Counties of Somerset, (West) Devon, and Cornwall. In the neighbourhood of Bridport, I saw a tolerably good Dairy of Cows, of a mixed breed; apparently

† For some account of the CHEDDER DAIRY, see MINUTE 65.

parently a cross between the middle and the long-horned breeds.

Formerly, the Cows used in these Dairies were mostly REARED, in the Country; but, of late years, Butter has borne so profitable a price as to induce the Farmers to forego the rearing, and to PURCHASE their Cows: a practice which, if it should continue, will soon introduce a mixture of stock.

Of the DAIRY MANAGEMENT, of the District under view, I can say little: I collected nothing on the minutia of practice worth registering. Its present practice can scarcely be said to be, as yet, *established*. It was not, therefore, an object; even had I had leisure to attend to it. To register the minutiæ of the Dairy Management, so as to render the detail intelligible and useful, is a tedious and irksome task; and requires not only time, but a species of opportunity, which did not occur to me, in this District.

Many of these Dairies are LET to DAIRYMEN, at a certain rent for each Cow; the Farmer keeping up the stock, and supplying them with pasturage and winter food; and finding a dwelling as well as a dairy house, for the renter. It is common for opulent men to hold a plurality of farms, and to let

them out to under tenants, in this way: a practice which is injurious to an estate; as tending to let down the buildings and the fences of farms, thus occupied by under tenants; who have not so permanent an interest, in keeping them up, as a lessee, or first tenant has, who makes the place his residence, and expects to occupy the premises for a length of time; and who is himself liable for dilapidations.

1804. Nevertheless, the PRACTICE of LETTING DAIRIES not having elsewhere fallen under my notice, I have endeavored to ascertain the particulars which belong to it; and I register them as historic evidence of the present State of English Agriculture.

The ORIGIN of this prevailing practice has probably risen out of the united circumstances of *small tenements*, and the *lifeleasehold tenure*. A man of substance,—having purchased the leases of a plurality of small farms, lying, perhaps, at some distance from each other,—and having found mere servants negligent or unfaithful,—hit upon a plan of giving his assistants a personal interest in their management.

And, *under these circumstances*, the practice may be ELIGIBLE; not only for the lease

tenant, or middle man; but for the community: as by this plan of managing a Dairy Farm, more produce may be sent to market from the given lands, than there would be, under the management of servants. Beside, Dairy renters are either trust-worthy married laborers, with notable wives who have been bred up in the Dairy Business, or farmers' sons who have not wherewithall to stock a farm; until, by their industry and frugality, as Dairymen, they have been able to lay up the required capital, or have gained sufficient credit among their monied neighbours: so that renting a Dairy may be considered as an intermediate calling, between a farm laborer and a working farmer. Hence, the evils, aforementioned, may be said to arise out of the improper management of estates, rather than out of the practice of letting Dairies; which, when tenants are suffered to hold a plurality of Farms, in a Dairy Country, appears to be at least politically eligible; tho certainly not equal to that of tenants occupying, wholly, their several individual Farms.

The TIME of AGREEING for a Dairy of Cows is generally about Christmas;—when not only the individual cows, but their summer pasture grounds, as well as the hay grounds

and aftergrass, are identified and fixed by the parties: these preliminary stipulations being the basis of the agreement.

The RENT is, or ought to be, fixed by the existing or expectant price of produce. Butter being now the principal article, it is, I believe, generally understood, that, with this article alone, the Dairyman ought to be able to pay his rent: the calves, skim-milk cheese, hogs, &c. being considered as his share of the produce, for labor and profit. Some time back, before the present high prices of Dairy produce took place, five to seven pounds, a Cow, was the usual rent: now, eight to ten pounds are given for the annual milk of a Cow; according to her known quality as a milker.

The TERM agreed for is generally one year: the agreement being renewed annually. But sometimes, I understand, a running agreement is made for three years.

The CONDITIONS, which are usually agreed to, are these:—*The Farmer agrees* to find Cows, summer pasturage, and lattermath; with good hay for Cows in milk, and ordinary hay, straw, or rough pasturage, for dry Cows, in winter; and with litter for such stock as require it: also, not unfrequently,

when the Dairy is large, as twentyfive Cows and upward, the grazing of a brood mare, to carry out the butter: together with a dwelling house, cheese loft, calf pens, hog sties, &c. sufficient for the use of the Dairy agreed for. Moreover, if a Cow die, while in milk, another of equal value is to be furnished: or if she lose a teat, or any other accident befall her, so as to abridge her produce, an equivalent allowance is to be made. *The Dairyman agrees* to provide utensils of the Dairy; and such articles of household furniture, as he and his family may need; as well as to take due care of the Cows thus to be committed to his charge.

The TIME of ENTRY is either Candlemas, or Ladyday. If the stipulated number of Cows and Calves are not furnished by the time agreed upon, a suitable allowance is made for the deficiency.

The MANAGEMENT of the Cows, in *summer*, is usually this:—they are turned out to grass, at Mayday, or perhaps a week or a fortnight sooner, as the state of the season may direct; the usual allowance of ground for each Cow being an acre and a half to two acres, according to the quality and condition of the land agreed upon, for their summer pastures.

In these "summer leys" they remain, until the "yee grass," or lattermath, of the stipulated mowing grounds, be ready to receive them; which is generally some time in August; the Farmer usually engaging to mow the hay grounds early in June, in order that the aftergrass may be of a proper growth, at the time it will be wanted. The yee grass commonly lasts them till the beginning of November, when they are returned to the summer leys; and there remain until they become dry, or winter set in; when they are either put into straw yards, or rough grounds, until the time of their calving; which generally commences the middle of January, and continues to Ladyday. In *winter*, the Cows are, in most cases, left in the charge of the Dairyman; but not in all. It is sometimes agreed that the Dairyman shall fodder them; at other times, that the Farmer shall expend his own hay. In either case, an inaccuracy of management almost necessarily takes place. The separated interests of the parties are here at variance. If the Dairyman fodder his Cows that are in milk, with hay, his interest is to lavish it on them, without frugality. On the contrary, if the Farmer fodder, his interest lies in saving his hay,

without regard to the produce of the Cows. So that in either case, there is ample cause of dispute; and often, no doubt, a public loss.

The early CALVES are mostly taken from their dams at a week old, and put together in pens, where they are fed with warm skim milk, and frequently kept there, until the beginning of June; when they are sold to drovers, who take them to Taunton and Exeter markets; where they are bought up, by the moorside, or other coarseland Farmers, of West, Middle, and North Devonshire; and are there grown, worked, and returned, in the manner noticed, in Vol. I. p. 240.

SHEEP. I observed, in the Bridport quarter, some fine flocks of DORSETSHIRE EWES: kept as breeding flocks; similar to those of the Vale of Exeter, and West Devonshire, which have been already spoken of. The Sheep of the hills are similar to the mountain breed, which occupy the other hills of Devonshire, and those of Cornwall: but they are more generally horned; partaking more of the horned Sheep of Dorsetshire and Somersetshire.

SOME

HINTS

FOR THE IMPROVEMENT OF

THIS DISTRICT.

It has been mentioned, that my chief intention, in going over it, especially its Northern quarter, was that of endeavoring to point out the probable means of its Improvement. And altho my examinations, and the result of them, were mostly of a private nature; some of the Remarks, they gave rise to, may, nevertheless, bear the public eye; and may be more or less useful, to those who have property in the District, and who are desirous to improve its condition. Nor may the suggestions, here thrown out, be altogether inapplicable to other Districts.

The few subjects of Improvement which I can bring forward, here, with propriety, are,

I. The HILLS, or COMMONABLE LANDS. Something has been already said respecting

respecting the PRESENT STATE of these lands; so far as relates to their soil, and the marks of cultivation which appear on their surfaces.

The SOILS, however, are various in quality. Some of these hills are covered with a loamy soil, of sufficient depth and texture to admit of profitable cultivation *: while others are nearly destitute of mold. The latter, very fortunately, is the smaller proportion.

The PRESENT PRODUCE has been mentioned, as being furze, heath, and the coarser grasses: interspersed, however, with plots of well herbaged sward.

The PRESENT STOCK is an inferior kind of Sheep; and young Cattle.

The MEANS OF IMPROVEMENT appear to me, to be those which I have suggested aforegoing, for the improvement of DARTMORE. See Vol. I. p. 329.

The first step is to separate the culturable from the unculturable lands;—to cut off the steep ragged brows of the hills, for PLANTING. And the next, to inclose their flatted tops,

* Towards the head of the Valley of Yarcomb, cultivation and permanent Inclosures climb over the top of the hill; uniting with the inclosed lands of the VALLEY of UPOTTERY. And some of the soil of the Common appears to be of a quality, similar to that of the cultivated Inclosures.

either for CULTIVATION, or for open SHEEP WALK, or RABBIT WARREN; agreeably to the soil and surface, and conformably with the proposals already offered. See, as before.

II. HEDGEROWS. Among the various Improvements of which the LOWER GROUNDS, VALLEY LANDS, or "BOTTOMS," as they are called, are capable, none strikes the eye more forcibly, than that of its HEDGEROW TIMBER; which is, at present, in a state of neglect. The same unpardonable practice of lopping Oak Timber Trees, so shamefully prevalent in the Vale of Exeter, is extended, in some degree at least, to this District. The soil of these Valley lands is peculiarly suitable for the growth of Oak Timber; and, on the broad low hedge banks, which intersect them, Ship Timber of the first quality might be raised, in great abundance, with little injury to the Occupiers of the lands, compared with the advantages which would therefrom accrue to the Proprietors and the Public. Yet we see these valuable nurseries, in many parts destitute, or very deficient, with respect to this inestimable article of produce: owing, principally or wholly, to neglect, or a want of skill in the Management of Estates. The COPPICE WOOD of these Hedgerows being reaped

reaped by the Tenants, they have an interest in destroying, and preventing the growth of TIMBER TREES: a circumstance which calls for double diligence, on the part of those who have the superintendance of Estates. There is, evidently, sufficient room, in the wide Hedgerows of these lands, to grow an abundance of fuel, for the Tenants, and a valuable supply of Timber, for the Landlord, and the Public.

The means of Improvement are evident. Take down the trees, that are irrecoverably maimed, or which are stunted, or fully grown, and *number* those which are proper to be left standing. Train up the young stands, or timberlings, so as to give them length of stem; not more to improve them as Timber Trees, than to prevent their doing unnecessary injury to the crops on either side, and to the Coppice wood which shall hereafter rise beneath them. And set out, in vacant spaces, at every fall of Coppice wood, such promising plants, as seldom fail to rise among underwood, growing on a soil so favorable to the Oak, as that of the Valley lands which are now under consideration.

The last is a business which requires particular circumspection. It cannot, for ob-

vious reasons, be left to a Tenant or his workmen, with safety; at least not to Tenants in general. The only way, in which it can be done with a certainty of success, is to send round an experienced and faithful Woodman, previously to the cutting season, to set out and distinguish with paint, or other conspicuous and permanent mark, the plants which are proper to be left for standards.

In this District,——where the ordinary Woods are usually cut out, in winter, leaving the Oak standing, until the barking season, agreeably to the Danmonian practice,—there would seem to be a favorable time for marking the standards, between these operations. But when it is considered, that the seedling plants, which ought always to be chosen where a choice offers itself, are frequently of inferior size to the sapling shoots from the stubs, and generally too inconsiderable to be left for peeling, such interval of time is too late. We may, therefore, without hesitation or hazard, conclude, that every Oakland Estate, having wide woody Hedgerows, should have an established regulation, requiring its tenants to give due notice of their intentions, previously to the cutting of their Hedgewoods; in order that the proper

plants, they contain, may be marked for standards; they being allowed a full compensation for the wood thus marked, as well as for the attention and care which may be requisite, in preserving them from injury: giving due encouragement, to the tenants who promote the growth of Timber upon their respective farms;—and treating with neglect, those who are negligent of its preservation *.

For Remarks on Training Hedgerow Timber, and its Effects on Arable Crops, see PLANTING and RURAL ORNAMENT, Vol. I. pages 56 and 96.

III. PLAN OF FARM MANAGEMENT. Some alteration, in the arable department of Management, seems to be wanted. The temporary leys are mostly foul, weak, and thin of herbage; owing, doubtlessly, to the practice of taking two or three grain crops, in succession, and laying the land down in a state of exhaustion, as well as foul, and out of tilth. Perhaps taking a crop of beans, in rows well cleaned, between the wheat and the oat crops, might be found doubly beneficial;

* 1804. In the present LEASE of this estate, the regulations here suggested make part of the conditions. See HEADS of a LEASE, in TREATISE on LANDED PROPERTY.

as introducing a species of produce, new to the soil; and serving to prepare it for the reception of the grass seeds, by a fallow crop *. In cases where the soil is very foul, a whole year's fallow is, of course, requisite.

IV. In the MANAGEMENT of the SOIL, two or three Improvements are obvious. Much UNDERDRAINING is wanted; not only in the meadows or lower lands; but on the rising grounds and hangs of the hills. Stones are plentiful; and sod drains might be found to answer, on the stronger lands.

Another Improvement, which presents itself, in the Management of the Soil, relates to the method of LAYING IT DOWN TO GRASS.

In West Devonshire, where the subsoil is absorbent, and the soil friable and firm, it is perfectly right to lay it down, as *flat* and smooth as possible. But, here, where the soil is tenacious, and the subsoil retentive, and much of it kept in continual surcharge, by the waters pent up beneath it, the practice is in a degree absurd. Nevertheless, the practices of these two distant Districts, with respect

* For the proper culture of beans, as a fallow crop, see SOUTHERN COUNTIES, Art. BEANS; District of MAIDSTONE.

respect to depositing, or forming the surface of their soils with the plow, to receive the given crops, are precisely the same. For wheat, the soil is gathered up into narrow ridges; and is laid flat, for every other crop.

The Improvement which strikes me, as proper to be proposed for this District, is that of keeping the land *in ridges*, of half a statute rod in width, for every crop; or of preserving the present narrower ridges for wheat, and throwing two of them together, for beans, oats, and ley herbage: being ever mindful to form the surfaces of the ridges gently convex, to shoot off the superfluous rain water which falls on them; with interfurrows, to receive the water; and with cross trenches, to convey it away, to the neighbouring ditches and common shores: a principle of Management, which is applicable to all cool retentive soils, in the Island, and might form a restriction in leases for such lands *.

V. MANURES. In a remote situation, like that which is now more particularly under notice, every experiment and expedient

* For the method of cultivating such soils, in halfrod ridges, see MINUTES of AGRICULTURE, in the Southern Counties, Sect. SOIL PROCESS.

should be used, to meliorate the condition of its lands, and to make up for the loss, they annually sustain, by the produce carried off, without any foreign supply or return for such exhaustion. Lime appears to be the only extraneous or factitious Manure, at present in use.

In the RURAL ECONOMY of YORKSHIRE, I ventured to suggest, as a probable mean of meliorating strong cohesive soils, the burning of their surfaces;—not more for the ashes, as a Manure, than for the cinders, or BURNT CLAY, which such a process necessarily produces, as a mean of improving the contexture of such cohesive soils*. And I have lately been informed, that the burning of the clay of drains, and spreading it over the strong cohesive lands of Somersetshire, is now practised, with great advantage. These simple and cheap operations are, at least, subjects of experiment, in every District, whose soils are of a close retentive nature.

The lands, now immediately under consideration, have another probable mean of Improvement within their reach; and which can rarely be commanded, by lands of a similar

* See YORKSHIRE, Vol. I. page 291.

milar nature. I mean the BLACK MOORY EARTH of the heaths, which inclose and overlook them. There is doubtlessly more or less earth of this kind, which lies at present useless on the hills, and which cannot, there, be turned to so beneficial a purpose, as, in much probability, it may in the Vallies: applying it, either in a simply digested state; or in compost with lime; or in the state of ashes;—as a short course of experiments, attentively conducted, could not fail to determine.

DISTRICT THE SEVENTH.

THE

VALE OF TAUNTON,

AND ITS ENVIRONS:

WITH CURSORY REMARKS IN A JOURNEY THROUGH

SOMERSETSHIRE.

In September 1791, on my way from West Devonshire to Sussex, I stopt some days at Taunton; to look round its fine Environs; and to get a general view of the Natural Characters, and some insight into the Rural Management, of this celebrated Passage of Country. I, then, not only examined the Area of the Vale, on either side, but ascended the Quantoc and the Black-down Hills, which overlook it; and went into one of the Sedgemores which mark Somersetshire, so discriminately, from the rest of the Island.

I have, since, had repeated occasions to travel through the Vale: and, in the autumn of 1794, on leaving Devonshire, I renewed my attention; continuing my Remarks THROUGH THE COUNTY, in the line between Tiverton and Devizes.

THE

VALE OF TAUNTON.

THE SITUATION of this fertile District, is in the Western Quarter of Somersetshire. Its NATURAL BOUNDARIES, on the North, are the Quantoc Hills, which separate it from the Western quarter of the Vale of Bridgewater: on the South, the Black-down Hills, which sever it, in a similar manner, from the Vale of Exeter:—and, on the West, the Dulverton and Brandon Hills. On the East, it narrows between the Black-down and the Quantoc Heights; and, at the depressed promontory of the latter, forms a junction with the more ample Vale of Bridgewater,—of which it may well be considered as a branch. See MINUTE 65.

Its EXTENT is small. It is barely entitled

to the distinction which is here given it, and which it not uncommonly bears; tho, in natural characters, its dimensions apart, it is in the strict sense, a *Vale District*. Less than one hundred square miles of surface, I apprehend, would contain the whole of its more valuable lands.

The ELEVATION of its Area, above the sea's surface, is inconsiderable; yet it is sufficient to keep it dry and healthy. Nor does any part of it, except its lower extreme, where it opens into the Vale of Bridgewater, appear to have ever been liable to the tide, or collected floods: it contains within its area no level marshes, or "moors," such as are scattered in the more central parts of Somersetshire.

In SURFACE, as has been intimated, this District takes the Vale character. Its area is diversified with rising grounds, and interspersed with low meadowy lands. The banks, on either side, rise to a great height. On the South side, the foot of Black Down shelves smoothly, tho somewhat steeply, into the Vale; but, on the North, the Quantoc Hills rise abruptly, and with a more broken and strongly featured front. From Cotherston Lodge, which crowns a prominent knoll,

that juts out from these hills, the entire surface of the Vale is commanded. It is closed, to the West, by a crowd of hillocks,—in tumult wild assembled: a genuine passage of that singular species of surface, which is common to the Western extreme of the Island; and which may be said to terminate, or rather to commence, here *.

The CLIMATURE of this Vale might be prejudged, from its situation. The bases of high extended hills are generally cool; and backward, with respect to seasons:—especially if they face the North; and still more especially, if the substrata are of a cohesive retentive nature; as are those of the South side of the Vale of Taunton. In the second week of September 1791, much barley was still unharvested, and some uncut.

The SOILS of this, as of many other contracted Vale Districts, vary in quality, with the hills which form them. Much of the North side of the Vale of Taunton is a deep rich sand—a carrot soil: while the opposite side is chiefly the same strong red loam, which we have found in the Valley of Yarcomb, and in the Vale of Exeter.

* And in the neighbourhood of Bridport, on the Southern side of the peninsula.

The SUBSOILS are still more various. In the area of the Vale, a Gravel is seen: under the rich red sands of Bishop's Lydiard, a concrete substance of the same color, and of various degrees of hardness, prevails. This concretion, in some places, takes the nature of rock; which, on being exposed to the air, acquires a great degree of hardness, and is used as a building material. Under the strong red soils, of the opposite side of the Vale, a deep loam, of a similar nature, is found: and, under this, substrata of a white sandy substance, hardening in some instances into a kind of stone, is seen interlayered with red loam; an accompaniment which is common to many, if not all, of the strong red lands of the Island.

The RIVER of the Vale is the TONE, or TAUN,—which is rendered NAVIGABLE to Taunton. The freightage is chiefly Welch COALS, for fuel, and CULM, for burning Lime.

The chief PRODUCTION of this fertile District is, at present, CORN. There is very little GRASS observable; unless near the Towns; and by the sides of the Tone, and its branches. And, even from the commanding point of Cotherston, not more than two or three small plots of WOODLAND are seen,

in the area of the Vale. The HEDGEROWS, however, are full of wood; and, when viewed from the opposite banks, a greater degree of woodiness appears.

The whole is in a STATE OF INCLOSURE; with FIELDS of varied form and size.

FENCES. In the Vale of Taunton we trace, by broken steps, the decline and termination of the DANMONIAN HEDGE.

In the more Western and central parts of the area of the Vale, the prevailing Fence resembles that of the Valley of Yarcomb, and the lower grounds of the Vale of Exeter: namely, a low broad bank, loaded with coppice wood, and hedgerow timber trees: the former mostly Oak; the latter Elms, shorn of their boughs, as in the ordinary practice of the kingdom.

But, in passing down the Vale, the HAWTHORN HEDGE begins, by degrees, to mix with the coppice mounds, and, before the Eastern extremity is reached, becomes the prevailing Fence!

In the MANAGEMENT OF FARMS, the Vale of Taunton differs, in some respects, from the DANMONIAN HUSBANDRY; especially in the outline or PLAN OF MANAGEMENT. It is properly an ARABLE DISTRICT: the TEM-

PORARY LEY, which is common to Devonshire, scarcely appears to extend into this Vale. In the second week of September, half the District, as seen from the hills, was PLOWED GROUND, or TURNEPS! the rest appeared to be PERMANENT GRASS, with the CORN, then unharvested, and STUBBLES unbroken up.

Nevertheless, in MINUTIAL PRACTICES, particularly in the management of Lime, the burning of Beat, and the sowing of Wheat, the Vale pursues the Devonshire method.

The CROPS are *Wheat*, *Barley*, *Oats*, and *Beans*, the last more especially, on the stronger lands of the South side of the Vale.

ORCHARDS. The height of Orchard trees, as of Hedges, undergoes a change in this Vale. In travelling, between Exeter and Taunton, the stem of the Apple tree is seen to lengthen towards Somersetshire; but not in uniform progression. And, in passing from Tiverton, into the Vale, similar appearances are seen. The first full-stemmed *English* Orchard was observed, in the neighbourhood of Wellington.

Further remarks on the Practice of the Vale will appear in the following JOURNAL, through SOMERSETSHIRE.

THE

QUANTOC HILLS.

THESE form a narrow range of Mountain Heights, which rise at the junction of the two Vales, below Taunton, and lead, in a North-west direction, towards the Coast of the Bristol Channel; dividing the low fertile lands of the Vale of Taunton, from those of the Vale of Bridgewater.

Their ELEVATION, with respect to the adjoining lands, is considerable; tho their positive height, above the tide, is not great. They are, however, too high, and too mountainlike, in their general aspect, to be merely deemed upland; yet not of sufficient importance to be styled mountain.

The SURFACE of these hills, or rather chain of hills, is greatly diversified. They resemble, in surface, soil, and present produce, the hills of East Devonshire; and, like those, have been heretofore cultivated (in whole or in part): the vallies or breaks, between them, being now in a state of cultivation.

The SOIL of the extended summit, to the East of Cotherston Lodge, appears to be of

a nature that would pay for cultivation; being now chiefly covered with grass and the upland sedges. But, to the Westward, the soil seems to be more barren, and much of the produce heath.

There being evident traces of Limestone on these hills, their IMPROVEMENT, in much probability, might be rendered very profitable to individuals.

Their insulate situation renders them highly interesting, to those who admire the ample scenery of Nature. The Mendip Hills, and the principal part of Somersetshire which lies to the South of them; the Hills of Wiltshire and Dorsetshire; Beaminster Down, with the prominent Hills of East Devonshire, terminating with Black Down; distant Hills, in Devonshire; Exmore, and the Hillocks of the Coast; with the Bristol Channel and its Holms, backed by the Welch Mountains; spread out wide to the view.

THE

BLACK-DOWN HILLS.

IT has been said, that these hills form the Southern bank of the Vale of Taunton, and separate

separate it from the Vale of Exeter: and, in like manner, they divide the Counties of Somerset and Devon. They are a continuation of the Ilminster Hills; forming their Western extremity.

In ELEVATION, they exceed every thing in their neighbourhood; equally overtopping the Quantoc, and the Axminster and Honiton, Heights.

In SURFACE, they resemble the rest of the minor mountains of this part of the Island; namely, flat, or swelling; divided by wide open Dells, or shallower Dips; and partially severed, by deep well soiled Vallies, or "Troughs"—as they are called—of cultivated lands. The extreme point, to the West, forms a bold Promontory; wearing, on its Western brow, an alpine appearance.

The SOIL of the summit is of an inferior quality: of a black moory nature: and strowed with the same base kind of *Flints*, that are observable on the other hills of East Devonshire; and this without any traces of *Chalk:* an unusual circumstance, worthy of the Naturalist's attention.

The STOCK of these mountain heights are young cattle of the West-of-England breed, and most of them neat: with the same auk-

ward, half-horned breed of Sheep, that are common to all the wild lands of this extremity of the Island.

On the Northern hang,—about the midway,—of these hills, are quarries of LIMESTONE, found in a singular state.

The quality of the Stone is evidently that of the Claystone of Glocestershire, of Leicestershire, and of the Vale of Belvoir; but instead of being deposited in regular strata, it is found in detached masses, bedded, promiscuously, in pale-colored earth; similar to that with which it is interlayered, in the instances above mentioned;—as if the strata of Stone had been broken to pieces, while the earthy matter was in a plastic state, and the masses had been blended, by some violent agitation.

The color of the Stone is blue, internally, and white, towards the surface; and burns to a somewhat sulphur-colored Lime; resembling that of Barrow, in Leicestershire*; and of Lyme, in Dorsetshire. See page 31.

FURTHER

* See MIDLAND COUNTIES, Vol. I. p. 27. N.

Further Remarks on the Limestone of West Somersetshire.

I afterwards examined the Limeworks and quarries of the Hills, which terminate the Vale of Taunton to the East, and which are entirely detached from the Black-down and Neroche Heights.

Here, the same Stone is found, in regular unbroken strata; as they appear in the quarries of Glocestershire, Leicestershire, &c. but with a very striking difference respecting their situation. In the places above mentioned, they are lodged beneath the surface of low flat Vale lands; whereas, in the instance under notice, they break out of the face of a lofty and steep hill.

Nevertheless, such is the impervious and retentive quality of these strata, that the land which lies over them, even in this elevated situation, and close upon the brink of a precipice, which probably has heretofore been the waterworn cliff of an estuary or arm of the sea, is cold and ungenial, as that which covers their watery bed, in the low grounds of the Vale of Glocester. The surface, in many places, is occupied by Coltsfoot. A field, close upon the brink of the cliff which

overlooks the marsh, or Sedgemore, that will presently be noticed, was under fallow for Wheat, at the time I was upon these Hills (in Sept. 1791); and, from the *complexion* of the soil, it appeared to be barely worth the labor of cultivation.

How much more depends on the quality of the substratum, than on that of the soil itself: the very soil, here under notice, if incumbent on an absorbent subsoil, would be worth three or four times its present value.

WEST SEDGEMORE.

FROM the eminence just mentioned, I had a favorable opportunity of gaining a general view of this rich Level of marsh lands. And, by riding a few miles within its area, passing through its herds and flocks, and conversing with those who were attending to them,—I had a similar opportunity of obtaining the particulars of information, which a cursory view required.

The NATURAL BOUNDARIES of these marshes are the Limestone Heights, above mentioned, on the South and Southeast; on the West, the broken base of the Eastern extremity of the Quantoc Hills, and the narrowed *mouth* of

of the Vale of Taunton. On the North, the Parret and the Tone are considered as the boundary of the "Moor" immediately under consideration; their junction forming the extreme point to the North. But lands of a similar nature are seen to stretch away beyond that point, farther northward: namely, King's Sedgemore.

In the view from these hills, there appears to be an EXTENT of these marsh lands ten or twelve miles in length, and several miles in width, under the eye. But the outline is extremely irregular; it being given by the rising grounds of the Vale of Bridgewater; a principal part of which is commanded from this eminence.

The ELEVATION of these lands (the part I examined at least) is such as to secure them, at present, from the tide; nor did I learn that land floods incommode them, in any considerable degree *.

Their SURFACE is level as that of the water, which, with moral certainty, once occupied the space they now fill. If we calculate on the rapid encrease of earthy matter, at the

* In the rainy season of 1799, however, almost the whole of this extensive tract of Sedgemores was under water. See MIN. 47.

mouths of rivers, whose waters are collected from rich arable lands;—and on the decreasing depth of the Sea; which, tho perhaps not equal to what some modern writers conjecture, has probably been considerable, during the last millennium of time; it is reasonable to suppose, that since the first settlement of this Island, the Sea rolled its rapid tides within the area now under contemplation: and the rapidity of the tides, in the estuary of the Parret, as of the Severn, accounts more fully for the quick encrease of the lands on their banks, occasioned by the alluvious matter forced up, by the "Boar" or Eagre; which is common to the rivers of the Severn Sea *.

The

* This striking natural effect, I have repeatedly observed, on the banks of the Severn, near Glocester; where, at certain times of the tide, and most especially during a strong Westerly wind, a body of water, some few feet in depth, rushes impetuously up the Channel of the river; gliding, as it were, upon the descending waters; forcing its way out at the more abrupt bends, and dashing its spray to a very great height, on every obstruction; attended by sounds, which may sometimes be heard to a considerable distance.

This effect is probably caused, by the form and situation of the Bristol Channel; which receives the tide, from

The present name of the marshes of Somersetshire, is a sufficient evidence, to prove, that, at the time it was assigned them, the reclaim was not completed: that they were, at the time it was applied, in a state of *Fen;* not in that of firm, dry *Marsh Lands,* as we now find them.

The SOIL of *this* marsh is a red loam, of considerable strength and tenacity; resembling, with great exactness, that of the Isle of Alney, and the other marsh or meadow lands of the Severn*; except in the deeper tinge of red that the soil of West Sedgemore has received, from a greater mixture of colored water, which the red soils of the Vale of Taunton, and the Northeastern base of the Black-down and Neroche Hills, have furnished.

The HERBAGE is singularly fine: apparently the Dogstail (*Cynosurus cristatus*), Ray-grass, and White Clover; with, however,

the Atlantic, by a wide opening, and contracts towards the mouths of the rivers that are thus affected.

The narrowing estuary of the Humber, produces a similar effect.

* For farther Remarks on the formation of Marsh and Meadow lands, see the RURAL ECONOMY of GLOCESTERSHIRE, Vol. I. p. 170; also TREATISE on LANDED PROPERTY, Art. MORASS.

some plots of thistles, on the drier parts, and stripes of silver weed *(Potentilla Anserina)* on the sides of the drains, and more swampy places.

Hence, this extent of marshes may be considered as land of the first quality: fit for every purpose of permanent grass land.

The STOCK which it bore, at the time I was over it, were Horses, Cattle, Sheep, and Geese.

Of the *Horses*, I saw nothing which struck me as requiring notice.

The *Cattle* consisted chiefly of young growing stock—mostly two or three years old. With, however, many Cows; some of them apparently in milk, or recently thrown up. The condition of most of these Cattle was good; many of them were full of flesh; tho the grass was short, as that of Sheep and Geese Commons usually is found. Aged Cattle, I understood, are brought forward on these commonable lands, to be finished with aftergrass.

The *Sheep* were chiefly or wholly of the horned breed; and had been put upon these lands, for the purpose of fattening. In a favorable year, it seems, they get tolerably fat. But much drought bakes those clayey lands,

and much rain renders them too wet for Sheep.

The myriads of *Geese* are incalculable. The whole are subjected to the operation of "pulling." They are now (13 September) covered with down, only. The operation, I was informed, is repeated several times, in the course of the summer; and found very profitable. They are kept on the "Moor," all winter. In long-continued frost and snow, they are fed, and, generally, I was told, with Beans.

Remarks.—From this cursory view, of these unappropriated lands, they appear to be of some considerable value, in their present commonable state. But viewing them as being, naturally, grazing and mowing grounds of a superior quality; and seeing the uncertainty of seasons in this climate; there can be little doubt of their being capable of affording much greater profit, to individuals, and to the Community, in a state of appropriation and division.

The prompt objection to the alteration is that of giving a check to the rearing of Cattle; and, some will add, to the rearing of Geese. The last, however, is not an object

of sufficient importance, either in RURAL, or POLITICAL ECONOMY, to weigh, as an argument, on this subject;—tho the feathers may be entitled to their full weight. And, with respect to the former, it may be said, that it cannot be good policy to suffer lands to lie in an under-productive state, by way of forcing the propagation of any particular species of animals, to the detriment of the aggregate produce of the Country.

CURSORY REMARKS

IN A *JOURNEY* THROUGH

SOMERSETSHIRE*.

TIVERTON TO TAUNTON.

(Twentyone Miles.)

FRIDAY, 19 SEPTEMBER, 1794.

LEAVE the charming environs of Tiverton: the finest situation in Devonshire; and one of the first in the Island.

Meet

* In continuation of that through NORTH DEVONSHIRE. I must again apologize for the *nakedness* of these remarks.

Meet many lime carts, from the works on the borders of Somersetshire. The lime mostly in bags: some in bulk.

Pack horses laden with hay, in trusses.

A view of the rich environs of Bradninch opens: backed by the hills of East Devonshire.

Pass through a rich plot of country, round Halberton (three miles). The subsoil red grouty gravel; as near Hatherley.

Some fields of fine turneps; beautifully clean.

The road mostly good: now repairing, with flinty gravel, or broken flints.

More good turneps; near Sampford.

A variegated subsoil: red and white.

Enter flat furze-grown commons, and leave the rich District of Tiverton.

The Black-down hills, with a strong mountain feature, appear in front, and at hand.

Meet more lime carts and some waggons: the latter of the West-of-England construction.

Instance of mowing dwarf furze: a second workman following, with a rake, to form the swaths into faggots.

Pass a young plantation of forest trees, of different species; put in among dwarf furze: the first instance of recent planting (excepting

the Scotch firs near Hatherley) observed in this journey of near a hundred miles!

Pits of red gravel, by the side of a good road.

The subsoil—a seam of waterworn gravel, and rough pebbles.

Leave the Vale of Exeter.

Join the Exeter road (nine miles), and enter Maiden Down: a wide furze-grown common: the depressed ridge which separates the Vales of Exeter and Taunton.

A broad view of Somersetshire breaks upon the eye: the Vale of Taunton, backed by the Quantoc hills.

Observe small and very neat cattle, on the commons.

A deep white sandy substratum; and heavy sandy road.

Some good oxen of the *Somersetshire* breed. Not so *clean* as the best of North Devonshire.

More beautifully clean turneps.

Sandy road, and hollow way: the substratum red sandy rock.

A tall English orchard! (near Wellington) the stems five or six feet high.

Instance of burning Beat, in the Devonshire manner.

Westcountry waggons prevail: crooked rails, but no insections.

A fallow laid up, in ribs and trenches.

Poor village huts.

Six oxen stirring a fallow of strong red [illegible].

Meet a string of culm carts; on their way, from the Taunton Navigation, to the Lime-works.

Some neat clean young cattle.

Dip into a close wood-bound flat: high hedges and hedgerow timber; as in East Norfolk.

The hedgebanks lower; but still wide, and partake of the Devonshire coppice hedges.

Devonshire tools are in use, here. The pointed shovel is common.

Pass several pieces of good clean turneps.

Hedge trees universally lopped.

A few single Hawthorn hedges begin to appear.

Several instances of stubble turneps.

Some thick polled sheep.

Lime compost, on headlands, as in Devonshire.

Instance of a pulse "arrish," dunged for wheat.

Some good Somersetshire oxen: dark blood red.

Subsoil variegated: streaks of red and white.

Healthy, tall-stemmed, *English* orchards!

Leave the red land. The soil and subsoil, now, of a light brown color.

Much hedgerow timber; mostly Elm.

A dairy of good cows.

Charming road; with a high broad foot-path: a London-like approach to

TAUNTON;—a large, well built, handsome town: the tower of the Church of St. Mary is singularly tall and beautiful.

THE MARKET OF TAUNTON.

THE Market Place of Taunton is one of the first in the Kingdom; whether as to size, neatness, or accommodations: a triangular inclosure, fitted up with streets of covered stalls, for butchers meat, and furnished with spacious colonnades, for corn, poultry, &c. and one for cheese, bacon, and other articles, —which are sold, *retail,* by farmers' wives and daughters: an unusual, but a very *political,* way of bringing these articles, at once, to the consumer; without the intervention of mere dealers.

The Corn Market, here, as in Norfolk, is held in the afternoon; beginning about three o'clock.

o'clock. Much corn in the market, in narrow two-bushel bags; each seller having a tray, to shoot part of a bag into, that its quality may be the better seen. Observed no samples; but understand that much is sold through their medium *.

TAUNTON TO SOMERTON.

(Eighteen Miles.)

SATURDAY, 20 SEPTEMBER, 1794.

THE Country, for the first two miles is nearly flat: the soil a lightish loam: then, somewhat swelling: a rich fine country.

Hawthorn hedges common.

Many stubble turneps: some of them promising.

Much arable land: the soil, here, mostly a strong red loam.

Many wheat stubbles turned under: an evidence of the forward state of husbandry.

Arrish mows common in this part of Somersetshire.

Instance of an Ox cart, with the yoke hung to the pole, by a wooden bow, instead

* These Remarks, on the Market of Taunton, were chiefly made in 1791.

of an iron ring. Doubtlessly the primitive contrivance. Beautifully simple; but liable to accidents.

The misletoe common in orchards!—See Vol. I. page 217.

The plow of Somersetshire has a long but well turned moldboard; with a wrest, standing somewhat high; and with a ladder-piece behind, which steadies a long, slender, right handle, shooting forward to the beam.

Leave a plot of vale land, to the right.

The under stratum appears in seams of red earth, and a sort of white stoney substance.

Wheat stubbles in narrow ridges, as throughout Devonshire.

Many fallows, for wheat, are seen.

Act-of-Parliament hedges, against the road. The first, probably, of any extent, from the Landsend.

Still many hedgerow Elms.

Instance of paring and burning.

A large field orchard going to decay.

Pass some good young cattle.

The pointed shovel is still in use.

Cross a dip of cold weak land (five miles).

A rainy stormy morning. How convenient is a carriage, and how productive of information! A tablet full of interesting facts,

facts, in travelling five or six miles; notwithstanding the unfavorableness of the weather. A traveller on horseback could not look up: nor if any thing met his eye, could he note it, with conveniency *.

Ox carts (wains or coops) are common.

Instance of a young field orchard (in North Curry). The plants tall, and set out at good distances, in the best Herefordshire manner.

A quarry of blue building stone.

Many orchard grounds.

A newly planted quickset hedge.

Many neat young cattle.

The soil and subsoil still red.

Good limestone road †.

Ascend the limestone heights. See p. 78. Carts and waggons, at the lime kilns: no pack horses.

* This remark applies to TRAVELLING. In examining a particular District or STATION, RIDING ON HORSEBACK is preferable to a carriage; and WALKING, infinitely preferable to either.

† A singular method of BREAKING ROAD MATERIALS, especially the base FLINTS that have been repeatedly mentioned, is observable in this country: a one-handed hammer being invariably used, by a workman sitting: a method which, it is asserted, is more expeditious, than the ordinary one of using the sledge hammer; which is, here as elsewhere, used in breaking STONES for the roads.

A good back view of the Vale of Taunton.

A broad view of the Sedgemores,—covered with cattle, sheep, and geese; and, over them, the Poldown and Mendip hills.

Some good horned lambs.

Thin limestone land; and more lime kilns.

A rich-looking valley of land opens to the right.

Instance of a field orchard, in a state of arable culture, as in Herefordshire.

A Sedgemore, or Marsh, of some extent is seen to the right.

Swing plows universal.

More field orchards.

The hedges of the road cropped.

A herd of tall thin white pigs.

Continue upon cold limestone heights.

Pass Burton Pynsent. A neat farmery, and large farm. Clean fallows, and good clover. Farm hedges kept down to fence height.

Four heavy horses plowing broken ground.

Six oxen employed in the same operation; with heavy long swing plows.

A full hedgerow of apple trees; as about Bromyard in Herefordshire.

Pass through Curry Rivel.

Strong cold land: wheat, beans, and clover.

See large flocks of horned sheep; of a breed similar to that of Dorsetshire, and East Devonshire.

Leave the limestone heights, and descend towards Langport.

A wide Vale District opens to the right (the VALE of ILCHESTER): with a naked Chiltern Country, in front.

Six oxen at plow, and four at harrow: all in yoke: also two at plow, with two horses before them; as in the South Hams of Devonshire; and as formerly in Yorkshire.

See the Montacute or Ham-down Hills; forming, in this point of view, a broken, prominent, striking object.

Flat-roofed hayricks, as in Cleveland.

Cross the Parret, at LANGPORT,—a mean market town. A Navigation and Coal Yard.

Pantiles in use, as a covering.

Enter a wide common field: the first of any extent, I believe, from the Landsend.

Foul bad husbandry: couch and thistles.

The subsoil limestone gravel; yet the land appears to be cold and weak.

Flocks of sheep now in these open fields.

Another flat of marshes appear to the right.

In front, a continued range of limestone *Downs*:—large depressed swells of arable

land, with shallow grassy dips between them; part in open common fields,—part inclosed.

A windmill appears: the first observed, in this journey.

Large flocks of sheep, in the open fields.

A sheep fold: the first.

Still, an open, naked, Cambridgeshire-like Country.

Catch a distant view of the Dorsetshire Hills.

Many good cart horses on the road.

Large limestone flags—or coarse marble slabs—raised near the road.

The plow team—four horses at length.

The tops of the swells are dry—stone to near the surface: but the sides appear cold and weak.

Foul thistly common fields.

A roughly broken passage, to the left.

A large sheep fold.

Somerton appears in a broad flat; or shallow bason; with rising grounds on every side.

A large field of rough old grass land: *appropriated waste.*

An ox waggon, partially loaded with straw; and thatched: doubtless, a harvest waggon, thus set by for the next season.

Enter SOMERTON,—another mean market town: the suburbs in ruins.

SOMERTON AND ITS ENVIRONS.

A DECAYING Place: the remains, probably, of a good Town: now, evidently, in neglect.

The building materials limestone and thatch. The stones neatly hammered, as in the Vale of Pickering.

Below the Town, towards the East, the environs are beautifully broken. A valley of rich marsh land, overlooked by bold wooded knolls.

Large good oxen, and good horned wedders, now grazing in the marshes.

SOMERTON TO SHIPTON MALLET.

(Fifteen Miles.)

SATURDAY, 20 SEPTEMBER, 1794.

CROSS the meadowy valley, and wind among the rugged hillocks, which form its Northern bank.

A flock of very neat, horned ewes:—in the best *Dorsetshire* form.

Ascend a thin-soiled limestone swell.

The Valley re-opens, to the right.

Pass a dairy of indifferent cows.

The soil encreases in strength.

Small fields and hedgerow elms; evidences of deep well soiled land; but unusual in elevated situations.

The Country is now more open; and a fine Valley is disclosed to the left.

A remarkable line of road; on a well soiled ridge, with a rich Vale District on either hand.

The conical hill near Glastonbury, surmounted by a tower, is a striking object in this point of view.

Strong wheat stubbles, on these uplands.

A fallow for wheat, now folding.

Limestone or marble quarries, on either side of the road. Many men at work; and teams waiting. Mostly raised in large slabs, six or eight inches thick. Lie, horizontally; and near the surface of level ground. Men employed in polishing them. The color blue grey.

Village buildings of stone and pantile.

Some orchards, on this cool soil. But the substratum is calcareous.

The Valley or Vale of Glastonbury, backed by bold heights, spreads wide beneath the eye.

Enter cold-soiled common fields (five miles).

Beans a prevailing crop.

The soil cold crumbling clay; like that over the claystone of the Vale of Glocester.

Reach the point of the cold-soiled ridge; and descend into the VALE OF GLASTONBURY*.

Cross the river Brue, at Lydford.

A parcel of ill formed cows, mostly black.

Cold Vale land—at present bare of herbage.

The mile stones shamefully defaced; but how easy to remedy the defect, *with paint!*

Marble stiles and fences common.

Elm trees and pollards scattered over grass inclosures.

Still a cold flat Vale District. The fields blue, with Devilsbit *(Scabiosa succisa)*.

The grass inclosures intersected with surface drains. A very cold plot of country: weak and languid, even at this season of the year. Adapted to the cheese dairy, and the rearing of cattle.

Some lean cows: but of a better frame than the last.

Many pollards in the hedges.

* This is a difficult passage of country to class. It is more than a *Valley*; yet wants something of the *Vale* character. However, below the part here crossed, it seems to spread wider, and to acquire a variety of outline and diversity of surface. I denominate it of Glastonbury, as it contains that ancient place.

A plot of woodland, well timbered: much of the land of this Vale is well adapted to oak timber. The hedgerows, at least, ought to be filled with it.

The whole in a state of grass: no arable land is seen from the road.

Another dairy of small ill formed cows.

Haystacks in the field; as in the dairy Districts of Yorkshire.

The land improves: still wholly in grass.

A well soiled rising ground, in front; entirely covered with grass.

A large dairy of cows, of the middle-horned breed; but not of the *Devonshire* variety.

Haystacks capped, only, with thatch; as in the Yorkshire practice.

Some roomy good cows: variously colored.

Arrive at the foot of the hill; the Vale being some three or four miles wide.

The road across it is a straight line. The Roman road, between Bath and Ilchester.

Another dairy of many-colored cows.

Reach the upper stages of the steep;—and enjoy the views:—extensive, rich, and picturable.

Good grass land upon these hills; and stocked with good cows.

From the summit of the hill, an entir circle of views is commanded: a wide sea of grass lands: the hills and the Vale being equally green.

The subsoil, of this fertile upland, is limestone gravel, in thin layers, between loam.

Some very good cows, on these hills.

Another Vale opens to the left: a fine, strongly featured country.

A large Marsh or Sedgemore appears on the left.

Observe several *sheet cows:* are they natives of Somersetshire * ?

Many good sheep,—of the Dorsetshire, or West-of-England breed. They appear to be common to Dorsetshire, East Devonshire, and this part of Somersetshire.

A rick frame loaded with straw, and thatched as a roof.

Meet a load of *Somersetshire* "reed:" differing from that of *Devonshire;* as having the ears cut off; and consisting of clean straight unbruised stems, only.

* This singular variety, which is observable in Gentlemen's grounds, in different parts of the Island, is given by color, chiefly or wholly. A SHEET cow resembles a red cow of North Devonshire, or West Somersetshire, with a white sheet thrown over her barrel; her head, neck, shoulders, and hind parts, being uncovered.

Descend into another Valley of grass land: narrower, but better soiled, than the last.

More limestone by the side of the road; having thick strata of brown earth between the seams of stone; which differs from the blue marble, aforenoticed.

Instance of underdraining, with flat stones set up, in the form of the letter V, inverted.

Ascend another range of grassland swells.

Stone fence walls, on these uplands: the first, from the westward, in this line of road. Some, in courses of dry stones, alternately with other courses, laid in earth mortar.

Instance of unbitten aftergrass; the first observed, in this stage:—a dairy country.

Good horned wedders, in these grass grounds.

Leave a rich grassy hillock, to the right.

The VALLEY of SHIPTON opens prettily:—rich grass land, beautifully surfaced; but somewhat disfigured with stone fences.

SHIPTON AND ITS ENVIRONS.

A SMALL Market Town; situated near the head of a fine valley.

The church stately, and in a good style of architecture. Several neat houses: a seat of the woolen manufacture.

On the North side of the valley, are some bold hillocks (the Eastern extremity of the Mendip Hills), composed wholly of masses of limestone, covered with a rich deep soil. The rock remarkably strong: being very different from the blue marble, before noticed: resembling, in general appearance, the stone of St. Vincent's rock, near Bristol.

A lime kiln and large quarries;—seemingly of long standing.

Ashen pollards scattered over these grass lands; chiefly planted by the sides of stone walls: a practice I have elsewhere observed, on well soiled limestone lands.

Some considerable dairies of good cows, in these environs.

SHIPTON MALLET TO FROME.

(Twelve Miles.)

SUNDAY, 21 SEPTEMBER, 1794.

CROSS the valley above the town: the water a mere rivulet. No appearance of mills of manufacture.

A shameful road toll: and this where materials are so abundant!

Pass a dairy of twenty or thirty good cows.

A large flock of sheep, on a thin-soiled hillock to the right.

Rise another grassy swell: the soil redish; the subsoil limestone gravel.

A foul wheat stubble; and an attempt at turneps. Dairy men are generally bad arable farmers.

More large light-colored cows; also a few calves: the first observed in this cow District!

More finch-backed, Glocestershire-like cows: with some mixed-breed heifers: how little young stock appears.

A wide view, to the right, backed by the broken heights of Stourhead.

Still grass land and ashen pollards: with some stone fences; but more thorn hedges.

Pass some large dairy farms.

A herd of good red West-of-England cows: a single instance.

A limestone quarry: a strong redish rock: the soil over it red, and of good depth.

Leave the limestone, grassland Country: and enter a weak-soiled arable District: the *soil* still red: in appearance, the same as that which covers the limestone rock.

The soil still weaker: sandy and wet.

A strongly featured country to the right; about Stourton.

A wide Vale District opens in front:—the fertile DISTRICT of TROWBRIDGE; skreened, on the right, by the Wiltshire Downs; and, on the left, by the distant hills of Glocestershire; with the broad Vale Country of North Wiltshire winding in between them; the District of Trowbridge forming its Western extremity.

Descend into another grassland dairy District.

Large mottled cows: somewhat of the short-horned appearance: a few of their horns shooting forward, and dipping at the points!

The Warminster Hills appear at hand.

The subsoil, again, a limestone rubble.

Good hawthorn hedges.

Wheat already in a green, grassy state!

Leave a woodland valley, to the right (six miles).

More wheat, in West-of-England ridges.

The towered height of Stourhead forms a prominent feature.

Drop into a broken wooded Vale District; the head of the VALLEY of FROME.

Grass land——and dairy cows;——of the middle-horned breed, and the finch-backed variety.

Haystacks in the shape of inverted turneps, as in Cleveland.

Round rodden cow cribs, as in Glocestershire.

A small orchard or two.

Large dairy grounds, intermixed with arable inclosures.

A flock of good Wiltshire ewes.

Cross a sweetly wooded dell. The substratum, on the West side, red shattered rock; on the East side, pale soft rubble: distinct masses of materials.

Village Buildings——stone, pantiles, and thatch; with some heavy stone-slates.

Leave a large farmery, on the right.

A passage of fine grass land.

Good stone road, between cropped hedges.

Enter FROME: a large well built place; in a fine situation. Several neat boxes, in its environs: the town likewise neat; tho a manufacturing place:——Leeds, without its coals and dirt. The Warminster and Longleat Hills, are good objects from these environs.

FROME TO DEVIZES.

(Twenty Miles.)

SUNDAY, 21 SEPTEMBER, 1794.

MORE deep loam on limestone: with mixed cultivation: grass and arable.

Stone walls, in the environs of Frome, as of Shipton: ugly, it is true; but effectual against hedgebreakers. Both of them are towns of manufacture.

A large dairy of longish-horned cows: apparently of a mixed breed.

A rich, clean country (two miles).

The name of the village, on a board, at the entrance of "Beckington:" a liberal act in those who placed it there.

A large dairy of mixed cows.

The road hedges legally kept.

Field hay ricks still common.

Three full-bred long-horned cows: the first.

Deep clayey subsoil (four miles).

Single-wheeled plows, with winding wooden moldboards.

A recent inclosure, from a state of common. The land a deep loam. The quicksets guarded with two lines of dead hedgework.

A flat, yet apparently dry country.

Enter WILTSHIRE.

A cold flat vale passage.

Farm houses—of timber and brick pannels; with weather-boarded barns; as in other Districts of the Southern Counties!

Rise a dryer, better-soiled swell of land:

Stocked with large herds of cows.

Fat cart horses, at grass (Sunday).

A view of North Wiltshire opens, in front.

Long-horned Cows, and West-of-England Oxen.

Pass through TROWBRIDGE; a fair town, finely situated. Many good houses. The principal street is remarkably neat. Seated on a clean swell of rich land; overlooking a sweetly wooded bason, backed by the Wiltshire Hills.

Catch a broad and extensive view of the WIDE VALE of NORTH WILTSHIRE.

The road hedges universally shorn.

Instance of high grassland ridges, as in Glocestershire and North Wiltshire: the first observed in this journey.

Some large orchard grounds.

Bad roads: soft limestone is among the worst of road materials.

Many hedgerow Elms.

Single-

Single-wheel plows in common use.

Some very foul bad farming: and a large inclosure of rough anthilly land: left, in this wasteful state;—as if to keep the arable lands in countenance.

Gates, with four bars, and shouldered hartrees, common.

Twenty well bred long-horned cows.

A fine Vale District: rich *waves* of grass land (three miles from Trowbridge).

More rich grass lands; stocked with LONG-HORNED COWS: now apparently in full possession.

Many hedgerow Elms: some of them large.

A complete dairy country (three to four miles). A small goose and pig common: how much like many passages of the Vales of Glocestershire.

A good long-horned bull; and some heifers.

See, in a quarry, fine loam, three feet deep, on limestone!

Some plots of field potatoes.

A wide extent of Elm-wooded Vale, to the right.

Many good WILTSHIRE SHEEP.

The base or unbroken area, of the Vale terminates. Ascend the fair hillock of Seend: —charming situation! rich and beautiful

views, from every point: three or four habitable houses scattered on the hill: elegant village!

Cross a dip of rich arable land: strong dark-brown soil. Wheat and beans; but no clover!

Ascend the first stage of the Wiltshire Hills, to DEVIZES; a large and respectable market town; finely situated.

From its environs, catch a broad view of the rich and extensive District of Trowbridge; backed by the rising grounds of Somersetshire, and distanced by the Mendip Hills;—tracing back, with the eye, a principal part of this day's journey.

A

GENERAL VIEW

OF THE

CENTRAL AND EASTERN PARTS

OF

SOMERSETSHIRE.

THE Line of Country, which passed more immediately under the eye, in this journey, varies much, in Natural Characters, and

Rural Management; separating, analytically, into

The Vale of Taunton;

The inclosed Limestone Hills, between Taunton and Langport;

The open-field District, or Limestone Downs, between Langport and Somerton;

The strong arable Lands on Limestone, between Somerton and the banks of the Brue;

The Vale or Valley of Glastonbury;

The rich, Grassland, Limestone Hills, on either side of Shipton Mallet; terminating in

The District of Trowbridge.

THE ELEVATION of this Line of Country is inconsiderable; unless towards its Eastern extremity. The tide flows, or has heretofore flowed, within much of these central parts of Somersetshire; extensive flats of marshes being seen on either hand. About Shipton, and thence towards Frome, the ground rises, but not considerably, and the waters which fall on it divide; part of them passing, westward, to the Bay of Bridgewater; the rest, falling into the branches of the Avon, pass off, northward, to the Severn Sea.

The SURFACE is singularly diversified; the hills frequently rise abruptly, from wide flat

vallies, or extensive tracts of marshes, which spread their broad level surfaces between them; giving them, in some points of view, especially when seen through a humid atmosphere, the appearance of Islands.

The CLIMATURE is probably forward. Every appearance of harvest had passed away.

The WATERS, SOILS, SUBSOILS, and FOSSILS, are detailed in the Journal; and it may be needless to remark, here, that, between the Vale of Taunton and the District of Trowbridge (both of which are evidently formed of heterogeneous materials), the Country is a continued chain of LIMESTONE HILLS;—but of strikingly different natures; the stones being of distinct species: the wide Valley of Glastonbury appearing to divide them.

The INLAND NAVIGATIONS, observed, are those of Taunton and Langport. Few parts of this Island are better adapted to navigable Canals, than is this part of Somersetshire: and surely, the Brue and the Avon, seeing the Coals, the Limestone, and the Manufactures, which lie between them, might be joined with advantage.

The STATE OF INCLOSURE appears in the detail: the entire Country is inclosed: except the moors or common marshes; and the

passage

passage of open common fields, between Langport and Somerton.

The PRODUCTIONS may likewise be gathered from the detail. To the West of the Valley of Glastonbury, *arable crops* are prevalent: in that Vale, and to the East of it, *grass* is the almost only produce, even to the confines of the County, and through the whole of the District of Trowbridge: an extent of grassland Country, which is rarely met with; especially where the surface is greatly diversified. Of *woodland*, this Line of Country, the Vales which terminate it excepted, may be said to be destitute: and the *hedgerow wood* is inconsiderable; the fuel being chiefly, perhaps, *peats* or *turves* of the fens and marshes; with *Coals*, northward of the Brue.

VILLAGE and FARM BUILDINGS are wholly of stone, covered with thatch, tiles, or a heavy kind of slate. Left the earth wall, in the Vale of Taunton; and met the half-timber building, and weather-boarding, in the neighbourhood of Trowbridge.

A BROAD-CLOTH MANUFACTURE, of considerable extent, I believe, is carried on, in the Eastern parts of this Line of Country. But, in travelling it, few traces of such a manufactory appear. The manufacturing Dis-

tricts of Yorkshire, and Lancashire,—more especially those of the woolen manufactures, are marked by their filth and misery: companions, however, which, it would appear, in travelling through Somersetshire and Wiltshire, are not essentially necessary to the WOOLEN MANUFACTURE: the most NATURAL, as well as the most POLITICAL, branch of Manufacture, this Island can encourage *.

The FARMS appear to be small: especially the arable farms, on the West side of the County; where the LIFE-LEASE TENURE is prevalent, and extends, I believe, more or less throughout the County of Somerset, and within that of Wilts. On the East side of the County, there appear to be some dairy farms of a greater magnitude.

BEASTS OF LABOR. On the arable side of the County, Oxen are prevalent, and freely used, in all the ordinary works of husbandry; but, in the Dairy Country, and on the borders of Wiltshire, a less *profitable* race of animals

* From enquiry, I understand that the woolen manufacture of Somersetshire, as of Devonshire, is much of it carried on (the spinning at least) in the *Country*; not altogether in *Towns*: thus becoming a sister employment to Agriculture; and a good, not an evil, in the manufacturing Districts.

animals (for the Public at least) is, I fear, in common use *.

* Tax on Horses. At a time (1795-6) when famine threatens us on the one hand, and severe taxes press on the other to save the nation from the impending evil, what political blindness must that be, which suffers the produce of the Country to be consumed, by Animals that make no return to the magazine of human food, nor any adequate recompense to the community for the expence they are hourly creating:—Animals that are preying on the sustenance which is wanted to suppress the cravings of the species:—Animals for whose support the Country may be said to be now paying sums incalculable. And, surely, they ought to be made accountable for a proportionate part of the debt they are lavishly incurring.

A tax of one Guinea, a year (on every horse, whether used in husbandry or otherwise), for the first three years, with an additional tax of one Guinea, a year, every third year, so long as sound policy shall see right (thus allowing time for the rearing of cattle), will raise an immense revenue; will lessen, essentially, the consumption of grain; and throw into the markets an abundant encrease of animal food.

1805. While the present Edition of this work is in the press, the Minister has proposed to raise the tax on Farm Horses from 12*s*. 6*d*. to 20*s*. a Horse. But his motion has been overruled, by Country Gentlemen; on the ground that such a measure would lessen the number of Farm Horses, and in consequence the strength of the Farmers' teams, so much, as to prevent the lands of these realms from being duly cultivated!

Had any one of the Country Gentlemen who opposed

The CATTLE of Somersetshire are various. The West-of-England breed are confined to the

the measure recollected what the maintenance of one of his Plow Horses costs him, annually, he would have smiled at the false alarm. The annual expence of a Cart or Plow Horse, properly kept up for constant work, is not *less* than twenty pounds;—has been of late years, from twenty to thirty pounds;—according to the prices of corn and hay. A penny or two pence, a bushel, in the price of Oats, is equivalent to the proposed additional tax. And what farmer (even tho he had his hay and corn to buy) would shorten his teams on account of so inconsiderable a rise in their expence?

I am, nevertheless, highly gratified to find, that the LANDED INTEREST, after twenty years implicit acquiescence in whatever impolitic schemes the Minister might propose, has at length resumed its birthright in the House of Commons:—a happy presage, let us hope, of its regaining its natural right of ascendancy in the British Parliament.

But with regard to the measure in view, men of landed property have no cause of alarm from the encrease of oxen and the decrease of horses of draft, in husbandry. The Devonshire farmer, who plows his lands with oxen only, pays nearly twice as much rent for them (in his remote situation) as the Kentish man (within the smoke of the metropolis), who plows with horses, *can afford*, for lands of a similar quality.

Stallion men, and breeders, and dealers in Cart Horses, are, no doubt, interested in their prevalence. A certain description of farmers, too, have a sort of interest in their

the Western and Southern parts of the County; the Vale of Glastonbury appearing, from what I observed, in the Line of Country travelled through in this journey, to be the Northern boundary of this breed. The cows of the dairy District are probably bought in; many of them have the marks of the Glocestershire breed; while others wear appearances of the middle-horned breed of the North of Yorkshire:—light colored, and irregularly pied: a variety of color in the mid-

use. Horses are not only more *fashionable*—the *pride* of professional men—but are more *pleasurable* to work, than oxen; especially to those who have not been accustomed to the latter. But are the community at large to suffer—perhaps in the most distressful manner—for the mere gratifications of a part? A *heavy* tax on Horses, of every description, would *decrease* (not annihilate!) the use of Farm Horses, and *encrease* the number of working oxen; and thus augment, with mathematical certainty, the supply of two of the most substantial articles of human sustenance:—over and above the ample revenue which such a tax would produce.

The great art of finance, I conceive, lies in benefiting the Country in the act of encreasing its revenue. And observing how few instances there are, in which this *can* be done, surely, no opportunity of effecting it ought to be let slip;—certainly, not one of such immense magnitude as that which is here considerately proposed.

dle-horned breed, which I did not expect to have met with, in Somersetshire. Knowing that the long-horned breed have been for a length of time established in North Wiltshire, and the red breed in the Vale of Taunton, I expected to have found a mixture of these two breeds, rather than a distinct variety †.

The SHEEP of Somersetshire have not been less the subject of surprise, than its cattle. I did not expect to find what in Smithfield is emphatically called "horned sheep"—and much less the *Dorsetshire* variety of that sort, —inhabiting, as an established breed, any part of Somersetshire.

Of SWINE, Somersetshire appears still to persevere in the old white breed; which may be said to be in full possession of the more Western Counties.

Of BEES, I *observed*, in Somersetshire, but one solitary hive! In the long Line of Country, between Cornwall and Wiltshire, I do not

† 1804. This variety, which is common to the Eastern and the Northern parts of the County, is, probably, the ancient breed of the Country; and may, formerly, have been in possession of North Wiltshire, &c. before the long-horned breed were there introduced.

not remember to have *seen* more than half a dozen of those industrious families!—whose labors are clear gain to a Country,—who contribute to the National stock without diminishing any other article of its produce.

A

RETROSPECTIVE VIEW

OF THE

WEST OF ENGLAND.

From the several Examinations aforegoing, it is evident, that the Point of Land, which is the more immediate subject of these Volumes, forms a NATURAL DEPARTMENT of this Kingdom; and that it was, heretofore (and still indeed may be said to remain), a PENINSULA,—partially cut off, by inlets of the Bays of Bridgewater and Bridport, from the main body of the Island.

It is equally evident, from these surveys, that the Department now in view is, at present, under a course of RURAL MANAGEMENT which differs, in many respects, from that of the Island at large; and whose basis, it is highly probable, has had a separate origin.

Judging from the modern practice of colonization, it is reasonable to suppose, that the

Bays, Inlets, and Estuaries of Rivers, in this Island, were the first colonized; and that, as inhabitants encreased, cultivation, by progressive steps, approached the higher lands; climbing, in the course of time, to the interior heights.

Admitting that Cornwall and Devonshire were early colonized, and the whole of them by the same people; and that, afterward, a colony of a different race took possession of the inlets of the Bay of Bridgewater, and the rich and ample shores, which, at that time, they doubtlessly afforded; the differences that are now observable, in the Rural Practices of their descendants, may be with less difficulty reconciled.

On this principle of colonization, the Vale of Taunton,—had the time of settlement (or invasion) been the same,—would naturally have belonged to the settlers (or invaders) of the Bay of Bridgewater; but allowing, what will not I believe be doubted, that the Vale of Exeter was priorly possessed, and that its inhabitants had overtopped the depressed ridge which divides these Vales, before their Northern neighbours had approached it, the Vale of Taunton would, in course, fall into the hands of the first settlers; and the same

circumstances would naturally attend the range of heights, and their Northeastern skirts, which form what I have here named the DAIRY DISTRICT.

In process of time, and when the entire Country became subject to the same Government, a mixture of practices would take place, and the two established systems of Management would mix, and blend with each other, in the manner in which we find them, at the present day.

The Practices which, now, more peculiarly distinguish what, for the sake of perspicuity, I have denominated the DANMONIAN HUSBANDRY,—will appear in the following detail: some particulars of which, however, are common to the four most Western Counties; as if they had once been politically united; with customs distinct from those of the rest of the Island: the particulars, here alluded to, relating to matters of *Policy*, rather than to *Agriculture*.

The CULTIVATION OF COMMONABLE LANDS is, I believe, peculiar to this extremity of the Island.

The LIFE-LEASEHOLD TENURE, tho not confined to the West of England, is the most prevalent within it.

The

The uniform prevalency of SMALL FARMS marks it, in a similar manner.

The singular MANAGEMENT OF COPPICE WOOD, which has been described, is common, and perhaps peculiar, to the Department in view.

The extraordinary FENCES of this part of the Island mark it most discriminately—common and peculiar to the Peninsula! even to this day!!

EARTHEN WALLS, tho not peculiar to the West of England, are in no other quarter of the Island, carried up so high, and so substantially, as in this.

The practice of putting out the children of paupers to farmers, as APPRENTICES IN HUSBANDRY, is, as an established custom, I apprehend, most prevalent in this part of the Island.

That of performing CARRIAGE ON HORSEBACK, may now be said to belong to this extreme part of the Island, only. Even in the Highlands of Scotland, it is in a manner laid aside.

Many or most of the IMPLEMENTS and TOOLS of this Peninsula are peculiar to it.

The practice of BURNING BRAT (by yelling,

harrowing, &c.), for wheat and turneps, is likewise peculiar to this Peninsula.

In the MANAGEMENT OF LIME—as in separating the stones and ashes *; mixing it with earth; as well as the manner of spreading it on the land,—this part of the Island differs widely from the rest.

In the HARVEST MANAGEMENT, we meet with many singular traits of practice. The Arrish Mow appears to be common to the Peninsula,—even to its outskirts.

HOUSING STACKS, by hand, tho petty, is peculiar. And WINNOWING, in the open air, tho once doubtlessly the universal practice, is now confined to Devonshire and Cornwall; I mean, as the prevailing practice of an extensive, well soiled, cultivated Country.

The method of THRASHING WHEAT, without bruising the straw, is peculiar to the more Western Counties: with, however, a notable difference that has been mentioned. See page 100.

In the Management of particular Crops, the SOWING OF WHEAT is the most remarkable. But the CULTURE OF TURNEPS may, at this

* This practice reaches northeastward, as far as GLOCESTERSHIRE.

this day, be considered as almost equally extraordinary.

The TEMPORARY LEY, of five or six years, tho not peculiar to this Peninsula; yet marks it, very discriminately, from the rest of the Western and Southern Counties.

WATERING THE SLOPES OF HILLS, tho not uncommon, at present, in some other Districts; yet, a century ago, it was probably confined to this point of the Island; and is, at this time, nowhere else so prevalent.

By its ORCHARD GROUNDS, this Department is most discriminately marked.

By the purity of its Breed of CATTLE, which tho not *specifically* peculiar to this Department, are evidently a distinct *Variety*; which in all human probability, have descended, lineally, and without admixture, from the native or wild breed.

The fatting of GRASS CALVES, it is true, is not peculiar to this part of the Island, being likewise common in Norfolk: it may nevertheless be considered as a distinguishing practice; as, in the interspace of two hundred miles, which separates them, I have not observed it, in the ordinary practice of Farmers.

The singular method of RAISING CREAM,

which is practised in this Country, may be called its own.

The BLEEDING of grown CATTLE, for the SLAUGHTER, I have not met with, out of this Department.

The practice of keeping SWINE to two or three years old, and the method of fatting them, are now peculiar to this Country. That of boiling their food, and of letting all the females remain in a state of fecundity, may likewise be mentioned as peculiarities.

The Mountain SHEEP of this part of the Island, appear to be peculiar to it.

In the SHEPHERDING of sheep, we have seen some striking traits of practice.

And the practice of SHEARING sheep, without previously WASHING their wool, is at present peculiar to a part of this Peninsula.

In this detail of peculiarities, we find many which cannot owe their origin to the first civilized possessors. But what strikes us most forcibly in examining it is, that, in the lapse of centuries, its Rural Practices should not have assimilated, more freely, with those of the Island at large.

MINUTES

IN

WEST DEVONSHIRE.

INTRODUCTORY REMARKS.

THE EXTEMPORARY OBSERVATIONS, that are here offered, may be considered as a continuation of those which occurred in my PRACTICE, in SURREY, in NORFOLK, and in the MIDLAND DISTRICT.

If these which I am now offering, and with the same sacrifice of feelings that has ever attended my publication of extemporary Memoranda, have any claim to peculiarity of character, it consists in their pointing out the regular approach to the Field of Improvement, and the requisite cautions observable, in entering it; so as to be able to pass through it, with safety and advantage.

In this aggregate capacity, it is presumed, they may be found useful to those who are desirous

desirous to enter a field, in which foresight and circumspection are, in a superior degree, requisite.

1804. THE fresh opportunities of observation, experience, and communication, that I have had, in this Department, since the publication of the first Edition, have enabled me to make considerable ADDITIONS to the MINUTES originally offered.

These additions consist chiefly of Itineraries, describing such DISTRICTS of the West of England, as had not, formerly, fallen under my particular notice, or relate to the MANAGEMENT of LANDED ESTATES: with, however, some few additional remarks on AGRICULTURE.

MINUTES.

I.

1791.

JULY 14th. FROM PLYMOUTH to BUCKLAND. DISTRICT.

Three or four miles from the Town of Plymouth, the fertile inclosed lands of its environs terminate; the traveller entering, apparently, the outskirts of Dartmore. To the right, wild furze-grown Commons and wooded Vallies are seen; to the left, upland Inclosures. In distance,—the ragged Tors of Dartmore on the one hand, the Cornish Mountains on the other: the scenery truly mountainous; the Valley of the Tamer, and a cultivated dell to the right, being overlooked, and in a great measure hid from the view.

About seven miles from Plymouth, the Valley of the Tavey opens; and the road, extremely unlevel, dips down to BUCKLAND ABBEY *; situated somewhat below the midway

* 1804. The local name of this monastic residence is "Place;" doubtlessly from *Plâs* (Welch and Cornish), an emphatical appellation for a residence of note or eminence;

1. way of the slope; at the head of a "Coom," or inferior Valley; in this case shallow, and spreading wide as it descends.

BUCKLAND ABBEY.

The situation is naturally recluse, and is now rendered truly so, by long neglect. The remains of the Monastery are the present habitation; and have been a residence of the FAMILY OF DRAKE, from the time of the CIRCUMNAVIGATOR, who purchased it.

Some half century ago, much planting has been done, round the site of the Monastery; and, during the last twenty or thirty years, scarcely a bough has been touched. The tower of the "Abbey," with a monastic barn of extraordinary size, and with various Gothic buildings, the remaining Offices of the Monastery, are seen (in the immediate approach through a grove of trees, which fill the head of the Valley with a sullen gloom), as in a forest, far distant from the haunts of men.

nence; as *Palas*, and sometimes *Plás*, is for a royal residence. That PLACE, or BUCKLAND PLACE, was once a PRIORY, there is, I believe, no doubt. But whether it was ever the residence of an ABBOT is not, perhaps, so certain. Nevertheless, as it has of late years been acquiring the name of BUCKLAND ABBEY, I think it right, now, to call it by that name. There are, indeed, some circumstances that seem to vindicate this application.

2.

BUCKLAND FARM.

JULY 14. Rode over the DEMESNE LANDS of BUCKLAND. The buildings are beset on every side with tall groves (and some of them overhung with large-grown trees, which are injurious to their roofs, and liable to crush them in their fall), except on the lower side, to the West, where the Valley is choked up with fruit trees, for some distance below the house; which is thus involved continually in a damp and stagnant air; unfit for men or animals to breathe. An over stocked rookery, which occupies a considerable part of these groves, is rendered, by this close atmosphere, offensive in the extreme *.

But, bursting from this gloom, one of the finest farms in the Island is entered. It contains near eight hundred acres of land: lying on every side of the house; but chiefly below it. Almost five hundred acres are in cultivation; the rest in old woodlands, groves, and orchard grounds.

Near

* 1804. This offensive closeness has been done away. The buildings are now well ventilated, without being left naked of wood.

2.

BUCKLAND FARM.

Near thirty acres of the lower grounds of the Valley, over which a principal part of the cultivated lands are spread, have long been imperfectly watered, by a rill that rises in the uppermost part of the demesne, and falls down the Valley into the Tavey; which forms the Western boundary of the farm, for more than a mile.

The upper part of the Valley of the Tavey is a steepsided dell; hung with wood on either side; having a narrow meadowy bottom. The very Wye and its banks! winding in the most picturable manner; with here and there a rugged rock rising above the coppice wood; its limits, with respect to this farm, closing, in a narrow secluded part, with a salmon weir, thrown across the river; forming a cataract of no mean effect. The lower part of the Valley is more open; the river terminating, within sight from the lovely swelling grounds of this *monastic demesne*, in a winding estuary; which is there margined with steep banks,—feathered to the water, with the woods of Maristowe.

3.

DISTRICT.

JULY 15. Rode into CORNWALL; by Dinham Bridge, Beer-alston, Calstock Passage (Ferry), Calstock Church—New-bridge—across Moorwell Down—and back by Dinham Bridge.

A most *romantic* ride! How much the scenery of this District resembles that of Monmouthshire, &c.: steep wooded banks of rivers; here broken and rugged, there showing a steeper face of rock. The heaths, on the Cornish side of the Tamer, strewed with blocks and fragments of granite, add to the savageness of the scenery, whether viewed at hand or in distance. And the inhabitants appear as rude and uncultivated as their Country: the Ferryman at Calstock is in the lowest state of civilization.

The Valley of the Tavey, at the height here crossed, is a mere dingle, wooded down to the river. But that of the Tamer, opposite and below Calstock, is open, well soiled, and set with orchards; the river, here, beginning to expand into an estuary; the tide flowing a mile or more above the Village of

3. Calstock. Nevertheless, its windings are most abrupt and striking; the ancient residence of Cultiel marking one of its bends, in the happiest manner.

DISTRICT.

LIMEKILNS. The upper part of the estuary is set with limekilns on either side; for the use of the Country near and above them; the stones and culm being brought up in mast vessels *. The arable lands are, now, every where studded with lime heaps.

SALMON WEIR. Immediately above the tide's way is a Salmon Weir; and, above this, the wild savage scenery just described; in the midst of which, near New-bridge, is a copper mine, now working.

HORSES. In this part of the ride, at the foot of Hinksdon, one of the highest of the Cornish mountains, I observed two diminutive mares and foals; the smallest brood mares I have seen. Young cattle, and even oxen, appear on these heaths. But no sheep observed in any part of this morning's stroll!

CLIMATE. The climature, even of the Vallies, is later than that of East Devonshire. Wheats are

* Observed two dinner kettles boiling on the top of one of these kilns. If the nature of the fuel requires that the fire should burn outwardly, this is a frugal practice. If not, it is an extravagant way of dressing dinners.

still green. On the Upper lands much grass is yet unmown! but evidently receiving great injury by standing. 3.

The produce is corn, grass, heath, and wood; the two latter covering, in this rude broken ride, much the larger proportion of surface. PRODUCE.

4.

JULY 16. Rode to the SKIRTS OF THE DARTMORE HILLS; over Roborough Down, to Mavey, Walkhampton, &c. *. DISTRICT.

Roborough Down, with the chain of rough Commons that reach from hence to near Plymouth, forming an oblong depressed swell, has every appearance of being a detached mass of the Dartmore Mountain; from which it is separated by an irregular Valley, containing three or four townships of cultivated land. Some of this land is of a very superior quality; one considerable plot of it letting

* In company with Mr. STAPLETON, of MONKS' BUCKLAND: a man to whose superior intelligence I owe much: a man who, with fourscore years of experience, possesses an activity of body and mind, which many men, of half his years, would be happy to enjoy.

4. letting at forty or fifty shillings an acre, in
SOIL. this bleak and humid climate, and in this remote situation.

The more central parts of this Valley now contain some fine crops of wheat, and much tolerable barley. But the soil grows weaker, and less productive, as the Hills of Dartmore are approached.

SHEEP. The Sheep on the skirts of the hills are mostly polled; but some individuals are horned: they are very uneven as to carcase: some of them, nevertheless, are not in a bad form.

CATTLE. The Cattle, seen in this morning's ride, are every where clean, and mostly of good frame. Chiefly of a dark-red color; a few of them with white Glocestershire spines. The size that of Glocestershire, and West Sussex.

PLOW TEAM. The Plow Team is chiefly Oxen. Saw six good ones in a Team, in light work; yet did not perform, even that, with due effect. One of the pairs, with a proper plow, in good hands, would make much better work.

NAMES OF HUNDREDS. It may be remarked, that the hundred, or subdivision of the County, which includes a considerable part of the District of West

Devonshire, takes its name, or is understood to have taken its name, from the Common which I crossed and repassed, this morning; or from some Town or Village which gave name to the Common; and of which there are at present no traces *. 4. NAMES OF HUNDREDS.

In this stroll, I crossed repeatedly the ARTIFICIAL BROOK, which waters the Town of Plymouth, and which is taken out of a small river, in one of the marginal Vallies of Dartmore. It is a treasure, not only to Plymouth, but to the long range of dry uplands, through which it passes. This great work owes its valuable existence to the genius and enterprise PLYMOUTH LEAT.

* This corresponds with the tradition of East Devonshire. (See page 33.) It is probable, however, that the Down, at least, received its name from an extraordinary pile of rock, or large stones, called "Rooburrow Rock," which forms a striking object, on the face of these wild lands: bearing strict resemblance to the Tors of the Mountains. In the provincial dialect of the District, *Roo* is still commonly used for *rough*; and *Burrow* is the ordinary name of a *heap*, whether of earth or stones (a combination which is still strictly preserved in pronunciation). Under this rough pile of rocks, the huts of the first settlers may have been raised; or Druidical Assemblies have been held.

The etymons of the names of HUNDREDS, or DIVISIONS OF COUNTIES, are most difficult; and the Antiquary, at least, is interested in their elucidation.

4. prise of the first Sir FRANCIS DRAKE: who
LYMOUTH LEAT. not only conceived the design, but, as tradition relates, superintended the execution: especially in the more difficult parts; and moreover supplied it with water, from his own manor. For farther remarks on this great public work, see MINUTE 13.

5.

ISTRICT. JULY 27. Yesterday, rode to TAMERTON, on the Eastern banks of the Tamer; varying my ride through this extraordinary passage of country.

The surface is broken in a most remarkable manner. The Stroudwater hills of Glocestershire are not more diversified. But a still more extraordinary feature of this little District is formed, by bays, creeks, and inlets, of the estuary of the Tamer, winding in among the wooded hillocks, in a manner which I have nowhere else observed, in this Island: but in perfect resemblance of the ordinary scenery, of the more broken margins, of the West India and Bahama Islands.

Nevertheless, the soil, where the Vallies have any width, is of a good quality; and even the tops of some of the swells are good

arable land: so that, notwithstanding the Country, in particular points of view, appears to be covered with wood, from the quantity which hangs on its steeper acclivities, it contains a considerable proportion of cultivated surface. 5. DISTRICT.

The Crops, and the System of Management, are the same as those which I have observed, in my former rides: so soon is the general outline of Management caught! SURVEYING A DISTRICT.

A fair held yesterday, at the sweetly sequestered Village of Tamerton Foliot, gave me an opportunity of seeing something more of the Livestock of the District. TAMERTON FAIR.

The Cattle—provincially "Bullocks"—were mostly of the West Devonshire, &c. breed: namely, bred, or reared, on the East and West banks of the Tamer: they are in general clean, well framed, and not ill fleshed: but there were few in a fit state to be *handled*. CATTLE.

Half a score remarkably fine oxen, eight or nine years old, of a size and form for anything which is required of oxen, stood as fat bullocks, for the butcher; but were barely forward enough for oil cakes, or other forcing food. If *fattened*, they would weigh eighty or ninety stones (of 14lb.) a bullock. GRAZING.

Also

3. Also two "Barnstaple heifers"—in a beautiful form, and as soft as moles, at two years old! and for this reason they were brought, here, to be sold to the butcher. What an error in practice! an error, I understand, which is prevalent through the Country: there are two on *this* Barton, I find, in the same predicament. Those which are of a nature to fat at two years old, are *murdered!* those which will not, are kept to breed from!

CATTLE. BREEDING.

CATTLE. BREED. A few short-horned and polled cattle were shown: different Gentlemen, it seems, having introduced them into this County. But they are fortunately disliked by the farmers; who prefer their own breed; and, prejudice apart, they have good reason for their partiality; their own being a much more eligible breed for a thin-soiled District. Their great defect is in milk, and perhaps this defect may have induced the Gentlemen of the County to bring in the Holderness breed; and, if they are kept merely for the dairy, no mischief may ensue.

SHEEP. The Sheep were mostly mountaineers—provincially "Moor Sheep:" thin, scraggy, ill formed creatures.

FAIRS. The Fairs of this Country begin about eight o'clock, and last till noon.

6.

PRELIMINARIES OF IMPROVEMENT.

JULY 29. Hitherto, I have been looking round me, and ascertaining facts.

1. I have traversed the Country, for a few miles on every side, and have gained a general idea of its outline of management.

2. I have studied a map of this noble Farm; traced its outlines; and examined, repeatedly, every field and parcel of it.

3. I have ascertained its present produce, or state of occupancy, by analysing, classing, and reuniting its various parts: thus bringing into one view the exact quantity of

Culturable lands,
Orchard grounds,
Planted groves,
Natural woodlands,
Hedges, lanes, &c. &c. &c.

4. I have tabled, in columns, the SUCCESSION, or state of occupancy of each individual field in cultivation,—during the LAST FOUR YEARS.

5. In the margin of this table, I have noted the species and quantity of MANURE which each field has received, during that period; the term of the ministry of the present "Hine."

6. I

6. PRELIMINARIES OF IMPROVEMENT.

6. I have registered the ARRANGEMENT, tabled the crops and fallows, of THE PRESENT YEAR; so as to show, *first*, the number, name, size, and crop of each field; arranged geographically according to their respective natural situations in the farm: *secondly*, the fields, arranged agreeably to their respective crops; thus coming at the aggregate quantity of each; and, *thirdly*, the totals of these aggregates, to prove the truth of the analysis *.

7. A table of the LIVESTOCK, now on the farm.

8. The quantity of MANURE IN STORE.

9. The IMPLEMENTS, &c. at present in use.

10. The WORKPEOPLE now employed.

UNTIL these particulars be ascertained, and spread out before the eye, so as to be referred to, in the most extemporary way, no man should presume to give orders, or suggest improvements, in husbandry. Nor, then, until he has considered well

The genius of the Country; and

The locality of the given farm, as to markets, water carriage, &c. &c.; also

* This method I struck out during my practice in Surrey (see MINUTES OF AGRICULTURE IN SURREY), and have invariably followed it, in the different parts of the Island, in which I have practised.

Its natural characteristics, or fitness for corn or grass, dairying or grazing, &c. &c. taken collectively as a farm; as well as

The aspect, soil, substrata, and state of tillage, of its several parts. 6. PRELIMINARIES OF IMPROVEMENT.

But, having duly informed himself in these requisites; and having assiduously caught, and preserved, the hints for improvement, with which first impressions may have furnished him, any man, having previously an adequate knowledge of the general subject, both in theory and practice, may venture to begin with cautious step, to enter upon its improvement: being however, even then, careful not to derange the established machine of management; until one which is preferable be ready to replace it: beginning with its more glaring improprieties and defects, as they occur fairly in the course of management; at once, to save unnecessary expence, and to prevent unnecessary alarm.

7.

July 29. The lands of this farm are evidently much out of tilth. The young leys are overrun with fern, and those of three or four years old are bare of grass. But no TILLAGE.

7. wonder; they have been mostly leyed, I find,
TILLAGE. agreeably to the custom of the Country, after three successive crops of grain; for which not more than three or four plowings are usually given!

PLOW. Indeed, were more to be assigned them, the Plow of the Country would be inadequate to the task of cleaning them. It is the worst Swing Plow I have seen. The beam short and clumsy, and the body long and ill formed, without a rise or wrest, to force open the furrow; the moldboard being set high above the keel, soal or sill of the Plow; which operates in loose ground, as the Kentish Turnwrest Plow; making a rut only, not opening a furrow *.

A foul piece of ground, intended for Wheat, but which I wish to cleanse thoroughly, for Barley, the ensuing Spring, by way of making a beginning in the great work of purgation, I saw tantalized by this ineffective implement.

* The DEVONSHIRE PLOW resembles much in general appearance, the Plow of the Herald and the Sign Painter: a circumstantial evidence, that it has heretofore been prevalent in the Kingdom; or that the Heraldic Figures of this Country, and the Plow of Devonshire, are equally of Norman or Armorican extraction.

7.

IMPROVEMENT OF PLOWS.

However, by fixing a wrest in the usual place, below the moldboard (the work of a few minutes), it cleared its way, and effected more, in going once over the ground, than the same Implement, without this simple addition, would have done in passing over it almost any number of times; and this without vexing the Plowman, or alarming the Country, with "a new-fashioned Plow."

Being desirous, however, to get the Implement into a better form, and to adapt it to two Oxen or two Horses, I have embraced an incident, to gain a pretence for constructing a Plow, suitable to that purpose. A small plot of ground, which is so much encumbered with trees, that a team cannot work in it, and which has in consequence been "hand beaten" and "hacked over," to free it from the foul state in which it has long lain, was nevertheless capable of being plowed, with a small Plow, and a single Horse.

In constructing this little Implement, I suffered the Plow-wright to pursue his own beaten track, with respect to principal pieces and general construction; deviating chiefly in the proportion of the *operative parts*; making the beam proportionally longer, and

7. IMPROVEMENT OF PLOWS.

the body of the Plow shorter, than in the Plow of the Country: adding, however, a wrest, and endeavoring to give the mold-board the proper cast. It fully answers the intended purpose; and bids fair to supersede the introduction of the Yorkshire Plow, for two Oxen or Horses. It has, indeed, one main advantage over any alien Plow: it is set to work and regulated, as the ordinary Plow of the Country; is indeed a Devonshire Zule; and as such it is held.

A PRINCIPLE OF IMPROVEMENT.

Seeing this, it strikes me, that a similar kind of success may be obtained, in any District, by adopting the general construction of the fashionable Plow of the Country, whether it be the Wheel, the Foot, or the Swing Plow; only altering the proportions, and giving the OPERATIVE PARTS the requiste cast.

June 1795. Men, who have never attempted to introduce improvements in Agriculture, may consider these sacrifices, to the prejudices of established customs, unnecessary and trifling; but those who have had experience, in this nice matter, will see their propriety.

8.

8.

SALMON WEIR.

JULY 31. The SALMON FISHERY of the Tavey is appendant to this estate. The WEIR, which has been mentioned, is a work of considerable magnitude and expence. It consists of a strong dam or breastwork, ten or twelve feet high, thrown across the river, in a part where two projecting rocks serve happily as buttresses to the masonry; which is built somewhat compassing or archwise (but not regularly nor sufficiently), to resist the pressure and force of the waters, in times of floods; when they are collected, by the slopes of the Dartmore Hills, and sent down with extraordinary impetuosity. At one end of the dam, is a "weir house" or TRAP; on the principle of the Vermin trap, whose entrance is outwardly large, but contracted inwardly, so as to prevent the escape of the animal which has taken it. It is remarkable, however, with respect to salmon, that altho the entrance is by no means so narrow as to prevent even the largest from returning, it is believed that there is no instance of those which have once entered quitting their confinement, tho they may have remained in it

8. several days:——a circumstance, perhaps,
SALMON WEIR. which can only be accounted for, in the natural propensity, or instinct, which directs them against the stream, and will not suffer them to give up any advantage that they may have gained; the ascent into the trap being an effort of difficulty: in this case perhaps too great.

On the higher side of the trap (which is some twelve or fifteen feet square on the inside), opposite to the entrance, is an opening or sluice in the stone work,—or rather the rock,—as a passage for the water. This opening has two lifting floodgates: the one close, to shut out, occasionally, the whole of the water; the other a grate, to suffer it to pass partially through the trap; and, at the same time, to prevent fish of any considerable size from passing upward. When the trap is set, the close gate is raised up, with an iron crow: thus suffering the water to pass through the weir house. On the contrary, to take the fish which have entered, the close gate is let down, and the trap is presently left in a manner dry.

It is observable, that the narrowed entrance of the trap is judiciously placed, somewhat above the floor; so that before the sal-

mon are much alarmed by the fall of the water, it has sunk below the mouth of the trap, and their retreat the more effectually cut off; for by following the water, near the floor, they are led away beneath the tunnel: which, like the open floodgate, &c. is made of strong wooden bars, open enough to permit the passage of the water, but not that of the fish. 8. SALMON WEIR.

The top or covering of the trap is a floor of planks, nearly level with the top of the weir; on the lower side of which the trap is, of course, situated.

Some days ago, when the water was unusually low—provincially and not improperly "small"—the whole river passed through the weir house. But the recent rains have swoln it to a tenfold size. The water now pours over the weir, in a dense, broad sheet; smooth, and glassy above; but furrowing as it descends; and producing, in its fall, a white foaming whirlpool; the regularity of the fall being broken, on one side, by the torrent, rushing down the steep descent from the sluice, and, on the other, by the margin of the river, bursting its way over the native rock,—a pleasing object is produced; while the extreme recluseness of the situation,—

8. the wild coppice wood on the one hand, and
SALMON WEIR. the high-grown impending timber on the other,—add to the picturable effect of the scene: which, in a mild evening after rain, is still heightened, and rendered more interesting, by the animating and beautiful accompaniment of salmon, displaying feats of futile agility;—throwing themselves far out of the water, in endeavoring to surmount the cataract; or struggling, with more fatal zeal, to reach the treacherous hold, from whence there is no return.

RIVER FISH. The species of fish taken at this weir are salmon, salmon peel—provincially "pail," and, at some certain seasons, a few trouts, mullets, &c.

NET FISHING. But the principal part of the produce of this fishery is taken by NET FISHING. The river, for near a mile below the weir, is broken into rapids and pools, some of them very deep. Seven or eight of these pools are adapted to the seine or draw net, which is drawn once, or twice a day, by four men: with horses to carry the net, and the fish caught; and with a dog to convey the end of the rope across the water, where it is too deep or inconvenient to be forded.

The fishing season commences, in *this* river

(the Tavey), the latter end of February or early in March, (but on the Tamer not until several weeks afterward!) and closes in October or November; when the weir is thrown open, and the fish, afterward, suffered to go up to the spawning grounds *. 8. NET FISHING.

Presently after a flood, and when salmon are abundant, ten or twelve are frequently taken at a draught; sometimes more; upwards of a hundred, it is said, were once drawn to shore †. No

* 1804. It has been the long-established custom of this fishery to throw the weir open, at a certain season, without regard to the state of the river: a practice that is erroneous. For the fish which pass upward, while the river is low, and of course when they are exposed in shallow clear water, are most of them destroyed by the country people, who lie in wait for them. And it has been observed that the forward fish, which are stopt by the weir, spawn in the tails of the pools below it. A fresh rule has therefore lately been made; namely,—to desist from fishing at the usual time, but not to open the weir, until a considerable flood of colored water will allow them to pass up, quickly and safely, to their spawning grounds; and, generally, to throw open the weir during the first autumnal flood; altho it may happen somewhat before the usual time of closing the fishing season. A regulation which, I conceive, may be well adopted in other salmon-weir fisheries, under similar circumstances.

† 1804. But this, like most other salmon fisheries, in

8. No wonder that a fishery thus productive, and lying at a distance from any habitation, should be liable to the depredations of POACHERS: especially as the river forms the boundary of a mining parish, notorious for its pilferers. They have been known to come down in bodies, like the game poachers of Norfolk; bidding ten or a dozen men defiance.

FISH POACHERS.

The net poaching is done, chiefly, in the night; while the river abounds with fresh water. But, in the day time, when the water is dead and clear, the poachers are not inactive; then, using the spear, which they throw with dexterity; and, by this practice, are known to carry off numbers.

Nor does daylight deter them, wholly, from net fishing, when the water is favorable and fish in plenty. Yesterday, in passing, with the Hine and his son, through the meadows which margin the river, a party of three or four net poachers were discovered. They fled, on our approach; taking refuge among the underwood of the opposite banks; leaving behind them a net which has doubtlessly cost them the profits of many a month's illicit practice.

the Southern parts of the Island, at least, has very much decreased, of late years, in its productiveness.

9.

9.

REMARKS ON RAIN.

AUGUST 1. The RAINS of this Country take a singular appearance: at least, have done so, in the commencement of the heavy showers which have followed each other, with little intermission, during several days past. They come on, in a sort of mist, or fine rain; not of uniform density; but driving before the wind, in perpendicular laminæ, with void interspaces; resembling more, in their proportions and general appearance, combs of honey in the hive, than any other object I can bring to my mind.

These rains are brought by the Southwest wind; are the produce of clouds arriving from the sea; and, being laid hold of by the high lands of this District, are checked in their course, and overtaken by those which follow; thus becoming more and more dense, until the heaviest rain is brought on.

On this theory, which is verified by fact, Cornwall and this Western and intermountainous District of Devonshire, receive more rain than the Vale of Exeter; and this a greater quantity, than the more central parts of the Island.

I have

9. REMARKS ON RAIN. I have repeatedly observed the high lands of Maker and Mountedgecumbe, which rise full to the view, from the higher grounds of this demesne, arresting a cloud on its arrival from the channel; appearing to hold fast its lower limb, while the upper parts seemed eagerly hastening towards the Dartmore Mountain; and while the surrounding Country was enjoying the finest weather.

The singular appearance, remarked above, may perhaps be accounted for, in its being the first stage of precipitation of the vapors which previously formed the unbroken cloud, or uniform mist. The vertical position of the laminæ apart, the appearance very much resembles that of the first breaking of the cloud which is produced, by solutions of calcareous earth and fixed alkali, into the flocks which form and follow each other to the bottom of the flask.

10.

DISTRICT. AUGUST 3. Rode to "the VIRTUOUS LADY;" a mine, situated on the banks of the Tavey, a few miles northward of this place, amidst the wildest scenery which steep-sided vallies, rocks, woods, and bleak heaths, can well give.

10. ORCHARDS.

Not one new or interesting idea, in the Rural Economy of West Devonshire, struck me, in this stroll; except that of paring off and subverting, apparently with a Breast Plow, the "spine" or rough sod of an orchard: not with a view of burning it; but for the purpose of letting it rot, as a "dressing" or manure to the roots of the trees! a practice, I understand, which is not unusual. In this case the orchard is rocky; many stones, or points of rock, appearing above the surface.

Inverting the sward may not operate merely as a manure; but, by checking the vegetation of the grass and weeds, it may give additional air, moisture, and freedom to the fibrils of the roots of the fruit trees.

Nothing, indeed, could well effect this purpose better. For the inverted turves being laid flat, and evenly over the surface, the shoots from the roots that are not destroyed by the cutting, may be smothered, or checked, by the covering.

11.

PLOWING.

AUGUST 7. I have, at length, the satisfaction of seeing a WHIP-REIN PLOW fully in its work, in the field. See MIN. 7.

The

11. FLOWING.

The first day, the horses were led. The second, driven, with reins; by a youth, walking at the side of the plow; as much to make the horses tractable, and render the new operation less irksome to the plowman, as to teach the young man the use of the reins, in harrowing; which is here two persons' work; even tho but one horse were employed.

This, the third day, the horses are become tractable; and the plowman is guiding and driving them himself: making, with two sorry rips, and the light plow above described, as good work, as six oxen are making, in the same field, and the same work, with the clumsy tool of the Country.

INTRODUCING WHIP REINS.

IN FUTURE,—let two plowmen assist in the introduction of whip reins, holding and driving alternately: thus, while the horses will be rendered manageable, the plowmen will be learning the use of the reins.

12.

COPPICE HEDGES.

AUGUST 8. A great defect and inconveniency of the MOUND COPPICE FENCES of this District, I see, is their being liable to be torn down by stock, whether cattle or sheep,

scraping away the base of the mound, and letting down the sides, perhaps in wide shoots. The soil thus shot down is a step to greater mischief; and, if not stopt, a passage is made across the mound. 12. COPPICE HEDGES.

To prevent these mischiefs, many "hedges" of the District, and particularly of this estate, have been faced with stone,—of the ordinary slate rock of the country,—mostly set on-edge, or rather on-end; which, by the people of the country, is considered as preferable to laying them horizontally, in the mason's manner. Most of the fences of this farm have been faced with stones, on both sides; at an expence, from first to last, nearly equal perhaps to the fee simple value of the land. For, as the roots in the body of the mound swell, the facing of course bulges out, and is at length thrown down; thus leaving the fence, if not timely repaired, in a worse state than those are which have been left free for blackthorns, and other brushwood, to grow and defend the sides of the banks.

Where this brushwood has got hold, and outlived the overhanging and drip of wide-spreading coppice wood, growing on the top of the mound, the sides are secure; for, being cropped and stunted by pasturing stock, they have

12. have grown, in many parts, thick and impervious; and it is extraordinary, that the idea of planting or encouraging such brushwood, and striking off the overhanging topwood, to prevent its being checked in its growth, should not have taken place; instead of that of facing the sides with stones; fetched, perhaps, some distance on horseback.

COPPICE HEDGES.

GUARDING HEDGE MOUNDS.

Seeing the evident propriety of this treatment, I have been applying it to a hedge, of three or four years growth, from the last cutting; as a specimen, or pattern, for the remainder of such as will admit of its application.

The blackthorns and other shrubs, which grow at the foot of the mound, and on its sides, I have endeavored to spread, over the face of the mound; fastening them, there, with hooked pins, as fruit trees to a wall: first clearing the brambles and weeds which grew before and behind them; and, afterward, trimming off the loose spray on the face of the whole; whether thorn, furze, bramble, or briar. Finally, with a long handled hook, striking off the overhanging boughs of the coppice wood; leaving a regular face, as even as the live stuff, at present, will admit of: not perpendicular; but

leaning somewhat inward, towards the middle of the fence; so as to give every twig, from the bottom to the top, light, air, and headroom. 12.

GUARDING HEDGE MOUNDS.

An advantage of this operation, beside that of putting the fence in the way of improvement, is that of freeing the borders from weeds and brambles, and from the drip and shade of outhanging boughs.

1804. The use of live brushwood, on the sides of the mounds, being evident, it appears, now that the fact is made out, to be no more than common prudence to lay in thorn plants, between the lines of turf, when a new mound is carried up. If long fibrous-rooted plants were chosen for this purpose, they would, in the first instance, be found of material use, in giving stability to the facings; by binding them to the body of the mound, until the roots of the herbage of the turves have time to strike into it, and tie the whole together. Dead sprayey boughs laid across the mound, as it may be carried up, would operate still more beneficially, in the latter intention. Sallow twigs would strike root, and afterward defend the sides; tho not so well as thorns.

13.

13.

13.

PLYMOUTH BROOK.

AUGUST 11. Rode to the head of "PLYMOUTH LEAT*." See MIN. 4.

This ARTIFICIAL BROOK is taken out of the river MEW, towards its source; at the foot of Sheepstor Tor; in a wild mountain dell.

I expected to have found an accurate gauge, to regulate the quantity of water; agreeably to the original stipulation. But in this I was disappointed. The Mew, itself, is there but a moderately sized brook. Across it a weir or dam, is formed, of large rough stones, with which the bed of the brook is thickly strowed. A paltry, ill shapen, wooden frame or floodgate, with a gully underneath it (through which most of the water passes), receives about half the waters of the Mew; now lower than usual, but not at their lowest. In the dam is another floodgate; lying lower than that of the made brook, to draw off the water from this, during repairs †.

* *Leat*, *Late*, or *Lake*, as it is sometimes spoken, is perhaps a corruption of *Lead* or Conductor; being applied, I believe, to any artificial channel for conducting water.

† A REGULATOR, for this or any other watercourse of a similar intention,—and especially where another sup-

The channel of the Leat differs, in dimensions, according to the ground it is led over. Across 13.

PLYMOUTH BROOK.

ply is wanted, below, as in this case,—might be permanently formed, in the following manner.

Build a strong watertight wall, or earthen mound, across the head of the made channel,—by the side of, but not too near, the brook or other natural channel out of which the water is to be taken,—high enough, to prevent the highest floods from flowing over it, into the aqueduct. In the lower part of this wall, or mound, but some inches above the bottom of the aqueduct (to allow for sediment to be deposited) fix the gauge,—whether it be a perforated block of stone, or a thick voided plate of cast iron, or a block or strong frame of wood ;—the perforation or void space being just of sufficient size to admit the given or required quantity of water.

By a dam, or check (similar to that above mentioned), across the supplying stream,—a few yards above the regulated mouth of the aqueduct,—form a pool (provided a natural pool do not offer itself in a convenient situation), and raise its surface high enough to cover, completely, the inlet or mouth of the aqueduct, *at low water*.

Thus, with ordinary care, no *less* a quantity than that stipulated for, would at any time be admitted. And altho, *in times of floods*, *more* might be forced through, by the incumbent pressure, the loss would not then be felt by the mill stream, below.

By a valve, or plug, the mouth of the aqueduct might be readily stopped, and its channel laid dry, for the purpose of cleansing, or repairs. And by placing a guard of piles, or a strong paling, before the mouth, it might, in ordinary situations, be kept free from incumbrances.

13. PLYMOUTH BROOK.

Across open plain ground, it is ten or twelve feet wide, with flat sloping banks; the water running six or eight inches deep, according to the descent; which is generally sufficient to make it ripple gently over the pebbles, with which its bottom is strowed; forming a living stream, a lovely brook.

The chief difficulty, in executing this valuable work, was in carrying it round the point of an almost perpendicular rock; where a wooden aqueduct was first constructed; but where a more substantial Channel has since been formed, with masonry.

MILL LEATS.

It is observable that the mill of Mavey, situated beneath this brook, and fed by the same source, the Mew,—and about whose waters, for want of accurate and substantial regulators, a perpetual contention is kept up,—is fed by an artificial channel, perfectly resembling the Leat under description. The mill of Milton, and other mills in this neighbourhood, are supplied with water, in a similar manner. And these Mill Leats may have furnished the designer with the idea of the Plymouth Brook *.

* On a conduit, in Plymouth, is the following inscription:—"SIR FRANCIS DRAKE FIRST BROUGHT THIS WATER INTO PLYMOUTH, IN 1591." The artificial

In whatever fortunate thought this aque- 13.
duct originated,—whether it emanated from the MADE BROOKS.

Brook, or "New River" of LONDON, was *begun* in 1608—(see MAITLAND, I. 295)—seventeen years after that of Plymouth was *finished*;—a circumstance strongly evidencing, that, to the ardent yet persevering mind of the FIRST CIRCUMNAVIGATOR, the metropolis is indebted for a supply of wholesome water, which is become essentially necessary to its present state of population.

1804. Notwithstanding the Town of Plymouth had enjoyed for two centuries a copious stream of fresh surface water, the Town of "Dock," as it is called,—namely, the new Town which has been built, *adjoining to, and as an appendage of, his Majesty's dock yard,* and which is now nearly equal in size to the old Town of Plymouth, has remained waterless! has had no ample supply of running fresh water, until very lately! For, through that kind of stubborn perverseness, or irrational waywardness, to which "rational beings" are liable, the inhabitants of the two places could not agree among themselves to enlarge the original stream, sufficiently, to supply both; —an undertaking which might have been effected at a small expence,—comparatively with that of bringing a fresh supply, by a new channel;—not from a clear brook, at the foot of Dartmore, but from among the brown astringent peat bogs upon the mountain!—which the good people of Dock have actually done!—the two streams keeping company for twelve or fifteen miles!—sometimes approaching within a few yards;—as if to babble to each other about the follies of Plymouth and Dock.

The

13. the mill stream, or from the stream work of the miner (see Vol. I. p. 314), or was elicited by the active and inventive mind of the projector,—its utility is great: not only in supplying a populous town with good water, but in watering a chain of uplands, fifteen or twenty miles in extent. The gratification experienced in falling in, abruptly, as frequently happens, with so ample a stream, in places where such an object is the least expected, yet where it is most wanted, is of a singular and superior kind.

MADE BROOKS.

How many situations in this Island, wanting such relief, might have it in a similar way!

Where a sufficient quantity of water can be had at the source, much of the cost might be repaid, by letting off branches, to the adjacent country.

Upon Roborough Down, a rill is taken out of the Plymouth Brook, for the use of a Gentleman, who lives some two miles off, close by the banks of the Tamer! This rill not only supplies his house, but furnishes water to pasturing stock, in its way.

The "Dock Leat" was begun, I think, in 1795, and received a degree of finish, I believe, in 1798.

In this case, the quantity of water is accurately regulated, by a perforated stone, set on-edge, in a sort of stone trough; the aperture is circular, and about three and a half inches diameter: furnishing a sufficient supply, if frugally managed, for a hamlet or village. 13. MADE BROOKS.

But the ancient rights of WATER MILLS are bars to improvements of this nature, as well as to the watering of lands: rights, however, which might, *now*, be alienated without excessive inconvenience to the community; windmills and steam engines rendering them no longer *necessary*; tho, in some situations, a few may still be useful.

1804. For farther remarks on this subject, see TREATISE on LANDED PROPERTY, Art. MADE STREAMS.

14.

AUGUST 12. Rode to PLYMPTON, in the SOUTH HAMS of Devonshire.

The scenery about Plymbridge is sweetly recluse; forming a happy contrast to the open view from Lord Boringdon's arches; from whence Plymouth Sound and Harbor, DISTRICT.

14. DISTRICT. with the interesting scenery which surrounds them, are seen immediately under the eye.

A broad view of the South Hams is also commanded from this proud point.

The Country immediately below it, about Ridgeway and the Plymptons, is peculiarly broken; yet most of it well soiled.

PLYMPTON FAIR. A Fair, of some repute, led me to Plympton, this morning. But it fell short of my expectation. About a hundred and fifty head of cattle, chiefly cows and calves; with a few half-fat oxen, and less than half-fat cows. Also a few pens of sheep; mostly poor thin-carcased animals. Altogether a mean collection.

PLYMPTON. The Borough of Plympton is most enviably situated. The climature mild, almost, as that of the South of Europe. The scenery around it delightful; and the soil of a superior quality; yet, in its nature, dry and clean. Provisions of every kind abundant and cheap. The Town, or rather large genteel Village, is itself neat; its inhabitants respectable; and it is situated near a great public road, without being incommoded by it.

15.

15.

PRUNING HEDGES.

AUGUST 12. (See MIX. 12.) Some older hedges, on the sides of harvest roads, whose boughs were grown too large, and reached too high, to be cut from the ground, I have had "pared" in the following manner.

Put two oxen to a waggon, and two men into it, with hooks of different lengths; placing the waggon close to the hedgebank. In this situation, the men were level with their work; cutting out the larger boughs, with common hedge bills, and striking off the spray, with lighter tools; the waggon proceeding with the work.

In this way, the two men cleared, in the course of yesterday afternoon, not less than a hundred rods, sufficiently to prevent the corn from being thrashed out, or torn off the harvest waggons, by the outhanging boughs. A dispatch which could not have been obtained in any other manner.

Even in the training of younger hedges (of this Country), a waggon might be employed with advantage:—in all cases, first striking

15. off, or laying down, in the manner described
PRUNING HEDGES. aforegoing, the brushwood which grows on the side of the mound.

16.

RECLAIMING STONY LAND. AUGUST 13. CLEARING ARABLE LANDS FROM STONES. The soils of this District are much incommoded with stones of different kinds; but chiefly with the slate rock, of which the Country may be said to be formed; and a species of quartz—provincially "whitaker"—which is frequently met with in large blocks, either entire, or partially incorporated with the slate rock.

A field, now under fallow,—which has long been noted for zule-breaking, I am clearing in this way. The plowman carries, in the body of his plow, a parcel of small rods; and, where he finds a stone, sets up one of his marking sticks. Two men follow, with shovels, mattocks, and crows; *raising* the *stones;* and *baring* the *rocks,* to be raised, at leisure, by men accustomed to quarry work. Thus, at a comparatively trifling expence, the land is freed, plow-furrow deep, for ever, from obstructions: not only of the

plow, but of harrows; which would now be seen riding upon flat stones, from one end of the field to the other, were not a person employed to follow, and release them from so aukward and unprofitable a situation: leaving, however, the stones upon the land; lest this part of his employment should be wanting, in future.

16.

RECLAIMING STONY LAND.

17.

AUGUST 27. CLEARING FOUL LANDS. (See MIN. 7.) This and another piece, still fouler, and in a worse state of tillage, I have treated, and intend to treat, in the following manner.

RECLAIMING LAND FROM WEEDS.

About a month ago, one of these fields, then in a state of loose broken ground, was laid up into narrow ribs (the gardener's trenches) by a half plowing; with a wrested plow, and with the stern set TEN INCHES wide; forcing up the ridgets, as high and sharp as possible; in order to destroy the root weeds, by drought, and by breaking their field of pasturage; and to give the seeds of weeds an addition of air and surface to promote their vegetation.

About

17. About a week ago, the first-plowed part was harrowed across the ribs, with long-tined harrows;—levelling the surface completely, and following them with a roller and finer harrows, hung behind it: thus grinding down every clod, and effectually destroying every seedling weed which had vegetated.

RECLAIMING LAND.

TILLAGE. The surface is now thickly set with another crop of seedling weeds,—which I am turning under by ONE DEEP PLOWING, across the former ribs, and in narrow plits, but with a BROAD SHARE, and with a STERN TWELVE INCHES WIDE; thus moving every particle of the soil, about TEN INCHES DEEP (some inches deeper, perhaps, than it has ever been plowed before), leaving the surface rough and cloddy.

MANURING. Over this rough surface, I am spreading a moderate manuring of yard dung; to be dragged, rolled, and harrowed, until the dung be effectually incorporated, with the fresh raw soil, brought up; thereby to meliorate it, and to *force* the seeds of weeds, with which it has, no doubt, been amply supplied, century after century.

FALLOWING. The weed seeds having spent themselves, and the crude soil having received the influence of the atmosphere, the manure will be

turned in, with a mean-depth or somewhat shallow plowing; and the surface be suffered to remain in the rough state, in which the plow leaves it, during winter. 17. FALLOWING.

In the spring, as soon as the clods have thrown out their seedling weeds, and the weather will permit, the surface will be ground down to powder, to induce the remainder to vegetate; and, in due season, the lands so purified will be sown with barley and ley herbage.

Thus, for the loss of ONE YEAR'S RENT, these fields will probably be benefited for twenty years to come.

1794. The success has answered the fullest expectation. The field which was managed more immediately under my own eye, is, I am of opinion, five pounds an acre better for the operation; reckoning on twenty years, from the time of performing it. EIGHTEEN MONTHS FALLOW.

It is observable, that, in every case where circumstances will allow it, an EIGHTEEN MONTHS FALLOW should be broken up, in autumn, or early winter, by a rib plowing; suffering it to lie, in an exposed state, during winter. This, besides employing the winter's frosts in the great work of purification, forwards the business of the ensuing summer,

17.

EIGHTEEN MONTHS FALLOW.

summer, and renders the whole operation a matter of leisure and conveniency; and, in the end, COMPLETE: putting the soil in its most profitable state of exertion, for a length of years. Under proper management, and with the assistance of FALLOW CROPS, Lands, THUS EFFECTUALLY RECLAIMED, may not require a repetition of the operation for half a century afterwards.

18.

HOING TURNEPS.

AUGUST 28. A field of twentyfour acres was sowing with Turneps, when I arrived here;—with too little tillage, too little seed, and some of it with dung much too long; the harrows having drawn the seed into stripes and bunches. The consequence is, the crop is irregular, and the few plants which appear are nearly suffocated in wild Mustard, and other weeds.

Some light hoes were ordered to be made, from old sithe blades; and six of them placed in the hands of women, who had never hoed, and one into the hands of a man, who had.

The directions, in going the first time over

the ground, were, to thin the clusters or bunches, and to check the weeds; without attempting to set the Turnep plants out, singly, or at full distances; and even, in doing this, to proceed slowly at the outset. 18. HOING TURNEPS.

Hitherto, they have performed this work better than was expected. Indeed, by adhering to the rules, here laid down, Turnep hoers will spontaneously grow out of them. By setting off slowly, and not attempting too great nicety, at first, the employment becomes pleasurable, and the eye and the hands are imperceptibly taught the art: especially if the greater errors which arise be, from time to time, pointed out, by one who is conversant in the operation.

They have now begun to go over the first-sown part, a second time; setting out the plants singly, and at due distances; namely, ten to twelve inches apart (the hoes being eight inches long); except where two plants stand near each other, in a vacant space; in which case, both plants are permitted to stand *.

Hoing Turneps, with eight inch hoes, made from

* For more particular remarks and directions, respecting this operation, see MID. CO. MIN. 6, and 87.

18. HOING TURNEPS.

from sithe blades, is moderate work for women (such hoes are light and pass freely through the soil); and, by proceeding on the principles here adopted (and letting them go over the ground, again and again, until they reach a degree of perfection), any woman, with an eye and hands, may be soon taught the art: will, in one whole season, become a sufficient Turnep hoer *.

How eligible, in Countries where women are not employed in reaping, to teach them the use of the Turnep hoe. What avails the slowness of their work, the first season, compared with the introduction of so valuable a practice: especially to a large occupier; and, still more, to a man of large estate.

19.

SHOEING OXEN.

SEPTEMBER 1. It is customary, here, to shoe working oxen; altho they are rarely employed upon the road. The stoniness of

* I have likewise found these light hoes, in the hands of women, of great use in HOING FALLOWS; where weeds were running up to seed, before the plow could reach them: a practice which cannot be too strongly recommended. See GLOCESTERSHIRE, Vol. II. p. 45, on HOING FALLOWS.

the soils, and rockiness of the lanes and drift-ways, may have given rise to the practice. 19. SHOEING OXEN.

In the form of the shoes, or the method of setting them on, I see little that is new. A few particulars of practice, nevertheless, require to be noticed. Having been cast, or thrown, and his legs bound together, in the usual manner, the animal is forced nearly upon his back, and his feet hoisted up to a convenient height, by means of a forked pole, some five feet long; the fork taking the bandage which binds the feet, the other end being fixed firmly in the sward, upon which they are usually thrown. This simple contrivance gives great firmness, steadiness, and conveniency to the operation.

That the individuals may be the more conveniently laid hold of, and trammelled, the team are driven to the place of shoeing, in their yokes, and hung together with chains, the hindmost chain being fastened to a large root, or stool, in the hedge; by the side of which they are usually placed; in order to prevent their running off, on seeing one of their companions thrown down and roughly treated, in their sight,—immediately under their eyes!

Today, the remaining three of a team of six,

19. six, shoeing in this extraordinary way, being alarmed and rendered savage, by seeing the savage treatment of their comrades, broke from their hold; ran off; the pair throwing down the single ox encumbered by his yoke; —dragged him;—broke off one of his horns, with its core close to his head; cut the sinew of his fore leg, almost through, with one of the hooks; and have thus *entirely spoiled him.*

SHOEING OXEN.

Some means of facilitating the shoeing of oxen are much to be desired. I am of opinion that were rearing calves, which are intended for work, accustomed to have their feet taken up, and their hoofs beaten with a hammer; and were a repetition of this practice to take place, in the winter season, when the steers are in the yards, or in stalls, they might afterwards be shod as horses.

WORKING CATTLE.

Working cattle should also be accustomed, from their earliest age, to be driven and led about, singly; should be wholly reclaimed from a state of wildness; as working horses are.

The ox, under kind and generous treatment, is easily familiarized, and rendered docile.

20.

20.

IMPROVEMENTS SUGGESTED.

OCTOBER 25. Before I left Buckland, in the beginning of last month, I digested the ideas which I had collected, respecting the present state and improvement of its fine demesne. Many of those ideas related, of course, to private concerns; many of them appear, in the foregoing Digest, of the practice of the District at large; and others, in the preceding Minutes. Some few of them, however, have not yet been introduced into this work; and these are inserted, here. For what applies to the Barton of Buckland is more or less applicable to the surrounding Country.

OBJECTS OF HUSBANDRY.

THIS, in soil and surface, is properly a SHEEP FARM. Sheep, Turneps, Barley, temporary Leys, and Wheat, ought certainly to be considered as PRIMARY OBJECTS. The DAIRY seems to stand second; as being, under proper management, in this situation, profitable in itself; and as a source of working cattle. But no part of it appears to be well adapted to the GRAZING OF CATTLE, which presents itself as a subordinate object;

90. OBJECTS OF HUSBANDRY.

to be confined merely to the aged cows and oxen, which the farm itself throws off. A main object, on many accounts, is to keep the manager at home. Hence, adopt a course of tillage, suitable to the soil and situation; with livestock adapted, in species and proportion, to the crops: adhering as closely to this outline of management, as seasons and circumstances will permit. Under these regulations, the Hine will have little to take off his attention from the interior operations of the farm; except the disposal of its immediate produce. He will have no riding about the Country to buy stock, nor any trifling away of his time, in selling them.

Farming and jobbing can seldom be united, with profit: even by a principal; much less by an agent.

1804. To simplify, as much as possible, the management of this charming demesne, (most unfortunate with respect to acting managers!) the DAIRY has been lessened, and SHEEP FARMING encreased. And the arable lands having been exhausted, by improper treatment, and the use of an improper manure (see MINUTE 60), the quantity of CORN LAND has also been diminished: no more ground being now kept in TILLAGE,

than is necessary to renovate the ley grounds, and raise winter and spring food for the sheep. Moreover, to enrich, and thereby to prolong the productiveness of the older ley grounds that are tolerably clean, FOLDING SHEEP on GRASS LAND is practised. See MINUTE 61.

20. OBJECTS OF HUSBANDRY.

This plan of management has of course been adopted, not with a view to PRESENT PROFIT, but to the PERMANENT IMPROVEMENT of the farm;—by consuming as much of its vegetable produce, as possible, within its own pale; and by bringing on whatever enriching manures can be procured:—thus recruiting the exhausted lands; and laying up in them the means of productiveness; which may, at any time, be commanded.

RIVER BREAKS.

Some RIVER BREAKS are wanted to defend the meadow lands. Stones, not timber, appear to be the proper materials for these Breaks. Hitherto, piles and planks have been used, to confine the rapid Tavey within its channel; much valuable timber having been used, from time to time, in "weiring;" while the bed of the river is strowed with stones, fit for this purpose.

1794. I have had one constructed, as a specimen, in the most difficult situation;—

20. immediately in front of the Salmon Weir, and
RIVER BREAKS. within the reach of its whirlpool, in times of floods; at one fourth of the expence which a timber guard would have cost. It is built with *dry stones*, collected from the river bed.

The permanency of this loose stonework depends, entirely, on the *principle of construction*. The face of the Break is every way bulging towards the force of the current; which acts upon it as superincumbent weight on an arch. The base line, some fifteen or twenty yards long, is the segment of a circle, with its outer or convex side to the water. The wall, from four or five, to two or three feet high, is carried up *battering*, or leaning, very considerably, from the stream; not with a straight line, but somewhat convex, and rounding off at the top,—until it forms nearly a horizontal paving. The stones are laid, with their larger ends inward; and not horizontally, but dipping, in such a manner, as to lie square with the face of the wall; which is thus placed in the posture of *falling* towards the bank of earth, that was rammed in firmly behind, as the wall was carried up. The whole to be filled in, level with the adjoining meadow; thick turf being firmly laid in continuation of the pavement; that the

water, when it overflows the meadow, may pass smoothly over the break, and thereby prevent the adjoining sward from being torn up, by a disturbed current. 20. RIVER BREAKS.

A violent flood displaced some of the uppermost stones, for want of the ground being filled up, and properly finished, behind them; and the eddy of the Weir pool scooped away part of the gravel from the foundation, so as to endanger it; until large stones were thrown against it, for its defence.

Where there is a proper choice of stones; and if the top and foundation be from time to time attended to; a river Break, built on these principles, may endure for a length of years.

1804. This River Break or Land Guard has now been completed, several years, and continues to answer, with very little care or attention, every purpose that could be expected from it. In places where the worn banks of the river are high, and the water at their feet is deep, loose stones have been shot down, from above, and with similar effect. For GENERAL REMARKS on this subject see TREATISE on LANDED PROPERTY.

20. BREED OF CATTLE.

THE present DAIRY cows, some few excepted, accord ill with the Barton of Buckland; which is entitled, in every point of view, to the finest breeds of LIVESTOCK the Island at present possesses. The degenerate breed, now upon it, are unprofitable, even as dairy stock, and are altogether unfit, as molds for working oxen; the breeding of which ought to be a principal object in keeping them. Some of the oxen, the descendants of the old stock of the farm, or which have been purchased, are almost unexceptionable: their size being their principal deficiency. The present degeneracy of the cattle appears to have arisen out of a wrong principle of management; namely, that of selling everything inclined to fatness, so as to fetch money; and buying in anything for cheapness, without regard to specific quality *.

SALMON FISHERY

The SALMON FISHERY, at present, is a nursery of poachers; owing not so much to the remoteness of its situation, with respect to the house, as to the skreens of wood, which now rise on either side of the river;

* This error in practice has been mentioned before; but it is of so treacherous and mischievous a nature (when breeding is carried on for the general purposes of cattle), it cannot be too often reprobated.

and hide them, in a great measure, from detection. Under its present management, it is an object worth their attending to, and of course draws them off from honest, but less profitable, employments. The most eligible course to be taken appears to be that of throwing difficulties in their way; so as to make it not worth their attention. To attempt to prevent them by force, especially while the mines remain open, would evidently be imprudent. 20. SALMON FISHERY.

Perhaps, the men who are employed in drawing the net, should be paid, not by the tide, or the number of times they draw it, but by the number, or weight, of the fish caught: thus uniting their own interest with that of their employer. Even night fishing might, by this means, be considerably checked; not so much by keeping watch, as by every pool being fished *carefully*, before the night came on. Now, if the net be wetted, their hire is due.

Or *perhaps* destroy the net fishing altogether; by placing obstructions in the pools; and depend solely on the Weir: which, if properly regulated and duly attended, would perhaps receive all the fish which enters the river; or, in much probability, a greater num-

20. ber than are now legally taken, by the weir
SALMON FISHERY. and nets jointly. Giving a weir man a fixed proportion of the produce,—for his attendance during the fishing season,—for seeing that the pools were kept guarded to prevent net fishing,—for keeping down the skreens,—and for attending daily and hourly, during dead water, to prevent spearing,—would, in this case, be requisite.

At present, the Fishery is either neglected, or it interferes, unprofitably, with the ordinary business of the Farm.

On whatever principle a Fishery of this kind is conducted, the persons employed in it ought to be rewarded, in proportion to the quantity taken; especially when they are not immediately under the eye of their employer.

1804. The first regulation which took place, for relieving the Farm from the encumbrance of this Fishery, whose productiveness has much decreased of late years, was that of appointing keepers of the river and fishermen, with salaries, and a percentage on the profits of the season. And, latterly, the fish continuing to decrease, the profits have been equally divided, between the proprietor and the fishers:—the former keeping the weir and its trap in repair; the latter finding nets.

21.

21.

DISTRICT.

OCTOBER 30. Rode to MILTON ABBOT; by TAVISTOCK and LAMERTON.

Some charming grass lands about Tavistock; still better before Lamerton; and yet more excellent, at Milton Abbot.

GRAZING.

Considerable herds of fine oxen, and good fatting cows, are now in these grounds: some of which are still full of grass;—highly colored, and apparently of a superior quality.

GEOLOGY.

How extraordinary, that Plots, such as these are, should be scattered in so bleak and barren a Country. Between Lamerton and Milton, an unproductive Heath intervenes; the rich lands of the latter being nearly surrounded with such Heaths, and overlooked by Mountains: the situation inhospitable in the extreme. The fertile lands of Lamerton and Tavistock are insulated in a similar manner.

But the extent of these lands, collectively, is small: and, in a survey of the Rural Practice of the West of England, they are rather a subject of admiration, than of importance.

22.

22. 22.

COATING BUILDINGS.

NOVEMBER 1. The ROUGHCAST work of this District is executed in a superior manner; being not only durable, but pleasing to the eye.

Some lately done at Ivybridge is equal, in beauty, to dressed stone work. Mr. Stapleton's house, in this neighbourhood, done in a similar way, has now stood upwards of half a century; and, excepting at the immediate foundation, and beneath some of the windows, where water has been suffered to lodge, the whole remains as firm as when first done; appearing to have acquired a stonelike texture. In both these cases shining gravel has been used; and both of them are false-jointed, to resemble dressed stone work.

An intelligent workman, whom I accidentally conversed with on this subject, suggested an admirable *theory* of the operation of roughcasting; making an accurate distinction between this and Stucco work.

STUCCO being laid on, *in a state of paste*, more or less air is unavoidably shut up,—let it be ever so well worked; and the very ex-

22.

COATING BUILDINGS.

pansion and contraction of this air, by heat and frost, is sufficient to break the texture of the Stucco. Beside, let the working be done ever so carefully, cracks, tho not evident to the eye, will be formed in drying; and if, by means of these microscopic fissures (or of those formed by the expansion and partial escape of the confined air), water take possession of the air cells, the perishing and peeling become natural consequences.

ROUGHCAST, on the contrary, being applied, *in a fluid state*, and by little and little, fills up every pore and cranny in the face of the wall; as well as in the face of every succeeding coat; which being suffered to dry, before another coat be added, the cracks, if any take place, are filled up; and *deep* ones, of course, are effectually prevented: whereas, the cracks of Stucco necessarily reach through the coat.

STUCCO evidently partakes of the nature of cement that is used, in a state of *paste* or mortar; LIQUID COATING, of cement poured into the wall, in a state of grout, or *fluid* matter.

STUCCO is analogous to the materials of a dam, or the bank of a canal, formed with earth, in a *plastic* state: ROUGH COATING, to the "*puddle*"

22. COATING BUILDINGS.

"*puddle*" of Canal Makers: to loam intimately mixed with water, and permitted to subside in a liquid state: thus preventing air cells; and forming a close, homogeneous mass.

1804. The ordinary practice of the Country is, first, to cover the wall with a coat of lime and hair mortar, in the plasterer's manner; and, while this is moist, to dash on the Roughcasting; which thus intimately unites with the surface of the plastering; and while this continues to adhere to the wall, the coating remains unimpaired.

Some years ago, the mansion of Buckland was roughcast,—*without being previously plastered*,—in the following manner:

The walls, of rough stone, and of varied appearance,—owing to the contractions, alterations, and additions, which have been taking place, from time to time, since the dissolution of monasteries,—were, first, scraped with trowels, and swept hard with dry brooms; to remove the dirt and the looser roughnesses of the surface. They were, then, watered, with the common garden watering pot; moving the nozle, a few inches from the wall, while a broom was briskly applied beneath it: thus cleansing the masonry,

more effectually, and completely moistening every seam and cranny of the surface. 22.

COATING BUILDINGS.

While a part, so prepared, was still moist, a coat of roughcast (namely, fine cleanwashed gravel, lime, and a little coloring, formed into a grout or batter) was dashed on with a wooden spatula, in the usual manner; and, before that became dry, another, and, in due time, a third, coat was added: the three coats being, in this manner, firmly united, or it may be said incorporated, not only with each other, but with the face of the building. Time will shew the effect.

23.

CHARLOCK, AS FOOD OF CATTLE.

December 10. Turneps. (See Min. 18.) Several acres of these Turneps were, in my absence, omitted to be hoed. I found them, overgrown with Charlock,—three feet high, and as yellow as a Rape field in blossom: the seeds of the lower pods being fully formed. Part had been drawn by hand, according to the custom of the Country, and thrown in heaps: an expensive and wasteful practice.

A few cart loads were ordered to be mown, —high enough to prevent, as much as possible, the injury of the Turneps,—and low enough,

23. enough, to get beneath the pods of the Charlock; and were strowed over an adjoining pasture ground.

CHARLOCK, AS FOOD OF CATTLE.

Sheep ate the tips of the leaves of the Turneps, partially cut off by the sithe; and also the leaves of the Charlock; but left the pods and the stalks of the latter, in a great measure untouched.

Cattle, however, preferred the Charlock; eating the whole up, clean; before they picked up the leaves of the Turneps.

Four or five acres kept about twenty head of young and store cattle, near three weeks. Had the food been given to them regularly, and more frugally than it was, it would have kept them, sufficiently as store cattle, a month. This, added to the saving of the expence, compared with that of drawing, cannot be reckoned at less than twenty shillings, an acre.

They ate it so voraciously, that one or two of them were repeatedly blown, or temporarily sufflated, by it: and a heifer failed so much, while at this food, that it was thought right to have her butchered. On opening her, however, her disorder appeared evidently to have been of some duration; a part of her intestines being in a state of decay. The pungency of the Charlock might, or might

not, have stimulated her disorder. This being as it may, it is sufficiently proved, that healthy cattle may be kept on Charlock in pod, with safety and profit*. 23. CHARLOCK, AS FOOD OF CATTLE.

24.

DECEMBER 10. The only useful idea I have been able to collect, from the late manager of this farm, is his method of cutting garden Cabbages. CABBAGES.

Instead of clearing the stalk or stem from the lower leaves, and cross-slitting the crown or top of the stalk, in the usual manner,—he cuts out the body of the Cabbage, only; letting all the open, large, spreading leaves, remain upon the stem.

The consequence is a second, perhaps a third, crop of *Cabbages*; not one but many, upon a stem; forming, by the third crop, a Cabbage tree. There are now, in the garden of this place, several stems, with four, five, or more wellsized table Cabbages on each: and, applied to the field Cabbages, which

* Part of it, the rough Charlock or WILD MUSTARD *(Sinapis arvensis)*; part, the smooth Charlock, or WILD RAPE *(Brassica Napus)*.

24. CABBAGES.

which are cut early, the principle may be a good one. The old leaves continue to draw up the sap, until vigorous shoots are formed; when the former are observed to droop, decay, and fall at the foot of the plant; being, perhaps, in every stage of their decay, useful to the young progeny; in shading the ground, in keeping down the weeds, and perhaps in furnishing a useful supply of putrid air to their rising offspring: advantages which are lost in the ordinary method of treatment. Many of the plants are killed by the sudden check of the sap, and those which survive, throw out numerous, and of course, weak shoots; few of them swelling to any useful size, or taking the Cabbage form.

25.

AGRICULTURAL SOCIETIES.

December 18. A Society of Agriculture, I understand, is now forming in the South Hams. In my late excursion, through that District, I heard of a "Plowing Match," at Kingsbridge, and another, at Ivybridge; where Meetings of Country Gentlemen, and substantial Yeomen, distributed REWARDS TO GOOD WORKMEN: a rational Institution, which, while it continues to adhere

to this principle, cannot fail of proving beneficial to the country. 25. AGRICULTURAL SOCIETIES.

If mere PRECEPTIVE SOCIETIES, without the power of EXAMPLE, IN THEMSELVES, can be materially serviceable to the advancement of Agriculture, their object, I am of opinion, ought to be that of ENCOURAGING GOOD HUSBANDRY, among PROFESSIONAL MEN: of searching for SUPERIOR HUSBANDMEN; and distinguishing them in such manner, as to create a spirit of emulation; and of assisting such distinguished Managers to procure the requisite means of improvement:—thus placing them in a conspicuous light, and making them the honorable instruments of that example, which a merely perceptive Society has not, in itself, the power of setting. For a mixed fortuitous Association of unpractised individuals to attempt, in themselves, to improve the Rural Arts and Sciences, is an act of weakness that could only be equalled by Societies of such men attempting the improvement of law, physic, and divinity, without the professional aid of practical men.

But, on a LARGE ESTATE, encouragements of this sort may be the best effected, by its Proprietor alone. He knows, or ought to know, the individuals who are most worthy of being

25. made the distinguished leaders of its improvement: and, in this case, he can encourage them, according to their merit; without being liable to the cabals of Theorists and Adventurers, to which mixed Societies are ever subject. A few pounds expended, annually, among his own tenants, in stimulating them to accurate management, would, in most cases, pay him tenfold interest *.

AGRICULTURAL SOCIETIES.

ASSOCIATION OF LANDED GENTLEMEN.

These reflections suggest Institutions of a higher order. Let men of landed property associate: not so much for the particular purpose of ENCOURAGING GOOD HUSBANDRY among their tenants, as for the more general intention of ascertaining the suitable regulations, under which to conduct the MANAGEMENT of ESTATES. For seeing, what is evident, not only in the District under survey, but in other Districts of the Island, that a greater defalcation of public and private property is incurred, through the inaccurate management of landed property, than through

* In a Sketch of the RURAL ECONOMY of the CENTRAL HIGHLANDS of Scotland, which I had the honor of presenting, in 1794, to the BOARD OF AGRICULTURE, as a Report concerning that part of the Island, I pursued this idea; proposing to divide a large estate into Districts, or Officiaries; and to place a superior manager in each, as a distinguished Leader, in Rural Improvements.

the errors of cultivation, it belongs exclusively to the possessors of estates to rectify the impropriety *.

25. ASSOCIATIONS OF LANDED GENTLEMEN.

The subjects, that would naturally offer themselves to such Associations, are the following.

The present management of landed property, in the District of Association.

The laying out of estates, into farm lands, or

* I am desirous of being fully understood. There are, in these Kingdoms, many Estates, as well as many Farms, in a state of good management; they being either under the immediate direction of Proprietors, who have turned their attention to rural concerns; or of Agents, who have a practical knowledge of rural affairs, and who have no interests subversive of, or distinct from, the good order and prosperity of the Estates under their care. But there will be little risk in saying, that a majority of the larger Estates, throughout the Island, are under very different principles of management.

I am equally desirous to be explicit, with respect to SOCIETIES OF AGRICULTURE. I have said in another place (see the RURAL ECONOMY of the MIDLAND COUNTIES, Vol. I. p. 87), that mixed Societies are capable of producing good, by assimilating the sentiments of Proprietors and Occupiers. And I believe that Provincial Societies have ever been beneficial, *in the outset*, to the Districts in which they have been formed; by agitating the Subject, and tending to awaken the SPIRIT OF IMPROVEMENT.

25. ASSOCIATIONS OF LANDED GENTLEMEN.

or such as are adapted to cultivation, and into woodlands, or such as are fittest for the production of timber or coppice wood.

The suitable sizes and characters of farms, for the given District.

The species of tenancy.

The forms of leases.

The qualifications of tenants.

The proper seasons and terms of removals, receiving rents, &c. &c.

The encouragement of good managers, and the discountenancing of bad ones.

The permanent improvement of farm lands, by draining, watering, &c. And their more temporary melioration, by manures, sod-burning, tillage, &c.

The plan, and construction, of farm yards, and buildings.

The management of hedges.

The management of timber, woodlands, and plantations.

And the more general improvement of the given District of Association;—by

Public Embankments.

Public Drains.

Public Navigations.

Public Enclosures.

The melioration of Tithes, and

The Poor's Rate: as well as the regulation of 25.

ASSOCIATIONS OF LANDED GENTLEMEN.

County concerns; and the support of

The LANDED INTEREST; which has lain neglected and trampled on, by Commerce and Manufactures, until the Country is no longer able to provide sustenance for its inhabitants. Men of landed property, it might be said, have lately been slumbering on their own concerns, and dreaming about the business of their tenants!

1804. For a GENERAL WORK on the foregoing subjects, see TREATISE on LANDED PROPERTY.

26.

BARN OF BUCKLAND.

1792. SEPT. 24. The MONASTERY BARN of this place is perhaps the first to be found, at this day, in the Island: not with respect to size, tho it is large, but in regard to the state of preservation,—both of its walls, and its roof.

This Barn having been built under the Pack-horse plan of Husbandry, was most inconvenient for carriages; having only one pair of doorways, in the middle of it; with a passage through, and a thrashing floor on

26. either side of the roadway. The width of
BARN OF BUCKLAND. the barn (namely, twentyseven feet in the clear), not permitting waggons to turn within the area, the Corn has ever been thrown, from the waggons, upon the floors, and thence flung, from hand to hand, to either end of the barn! which is a hundred and fifty feet in length.

The obvious method of improvement was to break out doorways, towards the ends; so as to divide the whole length of the barn, into six bays or mowsteads, with a floor between each two, in the *English* manner: an arduous task, which is now executing; and which will render it one of the first barns in the Kingdom.

NATURE OF CEMENT. The labor of cutting these doorways is nearly equal to that of cutting through solid rock, of equal thickness; namely, three feet. The cement is of an extraordinary quality: as hard almost as granite; especially on the North side of the building. That of the South or rather Southwest wall is much more friable: a circumstance which has been observed in other old buildings of this place; and which is entitled to Philosophic enquiry.

27.

THE USES OF RILLS.

SEPTEMBER 24. A Spring in the upper part of this Farm, supplies the house with water. It also supplies a drinking pool, near the yards; and its natural course carrying it through a small Strawyard, a trough is placed across the rill, for the use of the yard cattle.

It has also, time immemorial, been led over some grass lands, which lie below the yards,—on the float-and-drain principle.

But altho this rill is seldom if ever dried up—leading it along the sides of the Valley, through upland inclosures, which are destitute of water for stock, and their value of course thereby much depreciated,—does not appear to have been thought of.

In the course of last Summer, being desirous to know if this rill could be carried through an intended suite of yards, on the side of the Valley, I took the level of the ground, and found not only that object to be attainable, but that the water may be led with ease into several fields that are situated beyond them.

27. In ascertaining these facts, I made use of a mason's long level, inverted (not having a *spirit* level at hand): a plummet hole being previously cut in the head of the standard; the crown of which being set upon the ground, the arms of the level were steadied by rods, in the horizontal position; and a carpenter's rule held across another rod, set up, at as great a distance as a clear sight would admit of, and at a height upon the staff, equal to the height of the level.

THE USES OF RILLS.

CONSTRUCTION OF A NEW LEVEL.

Finding this a most simple and sufficiently perfect instrument, but difficult to adjust, by reason of its instability, I have since had a PLUMMET LEVEL made, on the same principle; namely, with a straight edge, or top rail, answering to the base board of the long level; with a broad piece falling down from the middle of it, answering to the standard; and with two end pieces or legs, to supersede the use of the rods; together with a bottom rail, eight or nine inches from the ground, and with diagonal braces, to keep the whole firm, and prevent the middle or plumb line from getting out of the square, with the straight edge of the top rail: which is seven or eight feet long, and the height

about four feet *. And, as an improvement of the rule and rod, I contrived a CROSS STAFF; namely, a slip of thin deal, about five feet and a half long, with a cross piece, two or more feet long, and three or four inches wide, fixed in the edge of it, at the exact height of the level; the top of the staff rising twelve or eighteen inches above the upper edge of the cross piece, that the hand of the person who holds it up may not interfere with the view †. 27. CONSTRUCTION OF A NEW LEVEL.

With this instrument, I have lately traced the FLOWING LEVEL of the intended rill, for watering the yards, and the grounds before mentioned. CONDUCTING MADE RILLS.

To ascertain the proper fall of a rill of this intention, I previously took the running level of the ancient floating Leat of the meadows ‡; and finding its fall irregular, I took it

* Half a rod long, and a quarter of a rod high, are eligible dimensions, when great accuracy is required. But a shorter length, as one third of a rod, is more handy.

† This cross piece should be of white wood, as deal, or be painted white, that it may be the more distinctly seen, at a distance.

For a sketch of this LEVEL, see TREATISE on LANDED PROPERTY.

‡ See Vol. I. p. 202.

27. it in two places, where the variations were greatest. In the first, the fall was twenty-seven inches, in one hundred and ten feet; which is nearly one inch, or one foot, of fall, to fifty inches, or fifty feet, in length. In this part the current is in a degree rapid; the fall much too great for the general intention. The fall, in one hundred and ten feet of the other part, is barely six inches; which is only one measure of perpendicular height to two hundred and twenty of horizontal length. But in this part, the motion is too sluggish: the surface of the water is nearly smooth; barely dimpling: no ripple, or agitation appears. The fall is evidently too little for a water course, in which there is not a constant stream.

CONDUCTING MADE RILLS.

PROPER FALL OF RILLS.

I have therefore fixed upon ONE MEASURE IN A HUNDRED, as the proper fall of a water course, into which water is occasionally thrown; for the purposes of watering lands, filling drinking pools, cisterns, &c. &c.

To adjust the level to this descent, I measured one hundred feet in length, and having nicely ascertained the DEAD LEVEL, I depressed the range of the top bar, one foot below the upper edge of the cross piece of the staff, and, while in that position, I marked the

27.

situation of the plumb line, on the face of the level; the plummet hole being made wide for this purpose: thus *fixing* the FLOWING LEVEL.

PROPER FALL OF RILLS.

With this descent, I have traced a line, from an intended reservoir, and from point to point, through the fields of one side of the farm, and find that it reaches, even with this descent, within every field: and that three fourths, or a larger proportion, of the surface are *capable* of being floated, from this intended pool.

To see the actual motion of water falling one measure in a hundred, I have had fifty yards of the upper end of the line opened; and find the current fully sufficient; a lively rippling stream; more active perhaps than is necessary. But the leakage being the less, the quicker the water moves, we may safely conclude, that one foot of fall in a hundred feet of length is nearly perfect.

By the same means, I have also found that, from a similar reservoir to be formed near the source of the rill, water might be conveyed to every field, and almost every acre of the opposite side of the farm.

USES OF RESERVOIRS

The uses of these reservoirs will be those of having in readiness, during the summer months,

27. USES OF RESERVOIRS.

months, when the rill is weak, a body of water to throw into drinking pools, cisterns, &c.: a weak current turned into a dry trench is absorbed by its perforations and fissures, for some time, at least, after it is turned in: whereas a body of water, moving quickly along it, not only in part escapes absorption, but tends to fill up the leaks: and, in winter, these reservoirs will be useful in scouring the trenches, and in hoarding up bodies of water, for the purpose of irrigation.

In setting out these rills, I have laid the head or upper end of each, from two to three feet below the intended surfaces of their respective reservoirs, when full. Hence, by means of a portcullis floodgate, a body of water, two or three feet deep, and the whole extent of the surfaces of the basons, may be poured into the rills, faster or slower, as occasion may require.

28.

DESTROYING EARTH WORMS.

SEPTEMBER 30. The florists of this District have an effectual and ready way of DESTROYING EARTH WORMS, in their knots and borders; by the means of an infusion of walnut-tree leaves. The process is this:—

fill a vessel nearly full, with leaves, gathered in the first or second week of September;—cover them with water, and let them stand two or three days, until the water has acquired a blackish-green color. With this infusion, the beds and alleys are watered, by means of the common watering pot. The worms presently rise to the surface, and die. 28. DESTROYING EARTH WORMS.

It strikes me that this interesting fact may be turned to a profitable purpose, in the forming of DRINKING POOLS. It is probable, that leaves of the walnut, spread under the clay, would have the same effect as the lime, which is now in use *. FORMING DRINKING POOLS.

Reflecting on this subject, it appears to me further probable, that the use of clay, in making pools, may be dispensed with. Thus:—form the bason; puddle with the best of the excavated mold; strow on leaves; and pave with liquid mortar; made up with their infusion,—if required.

The bason form of the pit is an objection to puddling; and could not, perhaps, be effected otherways, than progressively with the pavement; by puddling above each ring, and bedding the stones in the medicated matter;

* See YORKSHIRE, Vol. I. p. 144.

28. matter; pouring in liquid cement; where
DRINKING POOLS. it might appear to be wanted. Or, perhaps, the medicated batter would in itself be sufficient.

This is a subject of great importance, in upland situations. Forming drinking pools with clay and lime (great as was the discovery) is difficult and expensive; and any means of simplifying the process would be valuable.

29.

LAYING OUT FARMERIES. SEPTEMBER 30. FARM BUILDINGS. Where a blank is given,—where the ground may be chosen,—where there are no buildings already erected,—or, where there are given buildings, if they stand in the desired situation,—few difficulties can arise, in laying out a Farmery.

But where the site is given,—where there are principal buildings already fixed on the spot,—and these on aukward ground, and in aukward situations with respect to each other, as they are on this farm,—it requires great study and contrivance to render the yards and additional buildings convenient, or commodious.

29.

FARMERY OF BUCKLAND.

In this case, the capital barn, already mentioned, is situated between the dwelling house, and a range of spacious office buildings,—on the side of a steep hill; the out buildings above, the house below the barn; with other offices, at a considerable distance.

The desirable object, here, was to collect the whole into a compact form, in the immediate vicinity of the barn. And this has been effected, by forming a semi-octagon yard, in the front of the principal range of buildings; and inclosing it with a line of cattle sheds; the area of the yard being formed into a receptacle for the dung of the sheds and stables.

This form of a farm yard, tho I have been led to it by circumstances, cannot perhaps be improved; even where a blank site is given; except by that of a complete octagon.

CATTLE YARDS.

An OCTAGONAL YARD is warm, and is much more commodious than a square one; by reason of the sharp inconvenient angles being cut off; and octagonal sheds are equally commodious; each side having its range of stalls, with fodder houses in the angles, between them: a gangway, in this case, running from end to end, before the heads of the cattle, and through the store houses; which have doors

29. CATTLE YARDS. doors opening to the road, on the back or outer side of the sheds, to receive the food; —whether it be hay, straw, roots, or other material.

30.

HANGING DOORS. OCTOBER 5. The doors of the store houses of these sheds are hung to open outward; to prevent a waste of room, and to render them more secure against intruders. To encrease the security, they are hung with a fall to the catch; and, to prevent their being injured by the weather, when open, they have also a fall, backward, under the eaves of the building. To effect this, the balance point is placed in the midway, between the two extreme positions of the door; which, being set at right angle with the line of the building, has a fall to either hand *.

The hooks and catches are laid into blocks of moorstone, and worked up into the jambs of the doorways; the material of building being a coarse schistus, or slate stone.

The hooks of the new doorways of the

* See MID. COUNT. Vol. II. p. 71, for practical rules on this subject.

barn I am likewise laying into moorstone; recesses being hewn out of the jambs to receive the blocks; which are large, and fixed firmly in their places,—first, by means of wedge-shaped stones, driven in above them; and, afterwards, by wedging them in more firmly, with thin pieces of iron; forcing out the cement, at every crevice. 30. HANGING DOORS.

It is observable, that the hooks of the original doors of the barn, which are in like manner laid in stone, have most of them burst their bounds, and broken off more or less of the outer parts of the stones they are respectively laid in. A sensible and experienced stone mason is of opinion, that these fractures are occasioned by the rusting of the iron; having, he says, carefully traced the effect, in several instances. AN EFFECT OF RUST.

But may not this effect be caused by the susceptibility of metals, with respect to heat and cold? Or may not the mischiefs, in the instance under notice, have been done by the jarring of the heavy doors, blown violently to, by the wind? I have, however, observed similar fractures, in cases where the last suggested cause could not so easily operate.

Facts, which require a succession of ages

30. AN EFFECT OF RUST.

to produce them, are too interesting to be passed without attention. The effect, here noticed, is observable in many ancient buildings, and the operation of the rust of iron is not, perhaps, accurately understood*.

31.

HANGING DOORS.

October 13. Doors hung on hooks laid into the wall, as above described, require to be hung in *rabbets*. For, if they are hung in *between* the jambs, rain and snow will beat in: if they *lap over*, on the outside, they are exposed to the weather, are in harm's way, and are unsightly. A rabbet, of due dimensions, obviates these inconveniences;—and I have found that, for ledge doors, made of inch boards, and hung to fall back under the eaves, in the manner afore mentioned, three inches deep, each way, are proper dimensions.

* 1804. This effect is particularly observable where iron paling has been long stept in thin stone copings of parapet walls. I have seen an instance in which the entire coping is split, from end to end, as with wedges; so as to require cramps to hold the fractured stones together.

32.

32.

LIMING LAND.

OCTOBER 28. Last year, I ordered the lime, for wheat, to be set about the field, in waggon-load heaps; with the intention of mixing with it the velled Beat, or the ashes that might arise from it, as the season should render most convenient. But I left the Country, before I had an opportunity of seeing the operation, properly performed.

This year, similar heaps being distributed, I have had them covered, thickly, with unburnt Beat, collected with the team rake, or "drudge," of the Country; and the whole duly "melled" or mixt, in the Devonshire manner *; with a small deviation in this case.

The operation being purposely begun before the middles of the heaps were fallen, they were first pulled abroad, with a hack; thus giving a rough mixture to the unslacked knobs of lime and the wet Beat, under which they were deeply buried. This brought on a quick dissolution of the lime; whose heat, of course, operated in the destruction of weed seeds

* See the Article LIME, Vol. I. p. 159.

32. LIMING LAND.

seeds and animalcula; and, while the heat was at its height, the whole were intimately mixed together; thus saving, by one easy process, the almost endless labor of two tedious operations.

33.

CONDUCTING RILLS.

October 28. (See Min. 27.) In conducting this rill through an open grove of tall trees, I have found some difficulties: not only the *ground*, but the situations of the *trees*, were given. By pursuing the following methods, these difficulties have been overcome.

Having, by means of the plummet level, ascertained the degree of descent, through the whole extent of the grove; and having, in this operation, gained a general idea of the requisite direction of the rill, by means of stakes placed at the several stations of the object staff, wherever clear views could be caught through the openings between the trees,—the intermediate spaces, between the stakes, were traced by the eye, so as to endeavor to follow the natural fall of the ground, without forming abrupt bends in the channel;—parrying between the two.

33.

CONDUCTING RILLS.

The supposed line being thus set out, the surface of the ground was cleared two or three feet wide, on either side of it, from leaves and other incumbrances; and the top soil removed for manure: thus making a hollow pathway through the grove, some four or five feet wide.

The next operation was to level this pathway; which was likewise done by the eye, from stake to stake; paring off the protuberances, and casting or wheeling them into the hollows.

To come at the true line, and to render the flowing level perfectly uniform, a narrow pathlet, the width of the spade, was formed on the upper side of the broad pathway. This pathlet was formed, with the plummet level in hand; sinking trenches in the still protuberating parts, and raising banklets in the hollows: thus *fixing* the exact flowing level, at each level's length; and, at the same time, forming the face, or inner side of it, in such manner as to ease the bends, and give a smooth flowing line to the rill.

In order to bring the business of forming the bed of the rill to a certainty, and thereby to render any further superintendance unnecessary, yet to prevent error in the execu-

33. CONDUCTING RILLS.

tion, I formed a gauge for the laborers to work by.

This gauge consists of a board, forming the segment of a circle; the chord or greatest length being three feet, the greatest depth twelve inches. This gives the dimensions of the bed of the rill. To keep the bottom of it, exactly true to the flowing level, so that the current or stream may be perfectly uniform,—this gauge is fixed under a mason's short level; the end of one of the arms projecting, three or four inches, beyond one end of the gauge.

The trench being sunk, to nearly its proper depth, by the eye, kept on the adjusted margin, the projecting end of the level is placed on the same marginal guide, and the plummet line being brought to the perpendicular (and the base of the level of course rendered horizontal), the bottom of the trench is finished, *with certainty*.

This evening, I have had the water turned into the upper part of the trench thus formed, by two common laborers, who never before, perhaps, took a level in their hands. The current is not only desirable, as to descent; but is perfectly uniform,—*without alteration*.

Hence the practicability and certainty of this method of forming the channels of rills, —as well as the eligibility of one measure in a hundred, for the descent or fall,—are fully ascertained. 33. CONDUCTING RILLS.

34.

DECEMBER 8. The laying out and forming of ROADS have engrossed a principal part of my attention, during the last two or three weeks; and, so far as relates to convex roads, on a descent, I have brought this useful art to method, and a degree of certainty. LAYING OUT ROADS.

In the forming of roads, as in the conducting of rills, the plummet level is an accurate and ready guide.

The given points of the intended road having been marked, the most desirable line, whether as to utility or ornament, is to be set out, with tall stakes placed at equal distances, as ten paces from each other. These preparatory steps having been taken some days previously to the commencement of the work,—in order to give time for deliberate adjustments,—the level and the object staff are placed at the opposite extremities of the line, or as near them as a clear sight can be

34. LAYING OUT ROADS.

caught from the one to the other; and the level being deliberately adjusted to the staff, the situation of the plumb line is marked, on the face of the level; and thus the rake or DEGREE of DESCENT is determined and *fixed*; and, of course, a uniformity of descent, if required, may thereby be accurately preserved, in every part of the line. If this wind much, the degree of inclination or descent will be diminished, as the length of line is encreased; and, if an exact uniformity be required, an allowance should be made for such deviation. But, if the declivity be long, relaxations in the line of ascent, at suitable distances, have their use for heavy carriages, and are not displeasing to the eye.

The degree of descent being determined, the next step is to try if the line marked out correspond with it. This is done by keeping the level in its place, and setting up the object staff at the foot of each stake, or at the feet of as many as occasion may require.

If the marked line deviate, much, from the line of general level; so as to render the road inconvenient, or encrease, unnecessarily, the expence of making it, a fresh line is set out; endeavoring to parry, between the true line of direction, and the true line of descent.

34.

LAYING OUT ROADS.

The line of direction being finally determined on, and adjusted, a strong stump, or slender pile, two feet or more in length, is entered, with an iron crow, at the foot of each stake; and driven down to the general rake of the intended surface of the road, when finished.

This is readily done, by placing the feet of the level, on the intended line of surface, and putting the foot of the staff upon the head of each pile; continuing to keep the level to the rake line, and to drive the pile, until the arms of the staff are seen to range exactly, with the straight edge of the level; or, which is frequently more expeditious, especially where the subsoil is stoney, by placing the foot of the staff against the side of the pile, and raising or lowering it, until the raking level be caught; then marking, and sawing off, the head of the pile: proceeding in this manner, until each stake is supplanted by a pile.

Where the ground is very rough and uneven, it is convenient to break down the protuberances, by the eye, previously to the adjustment of the piles.

The piles being adjusted, a regular trench or pathway is formed, the whole length of the

34. LAYING OUT ROADS.

the line of road set out, at a depth below the heads of the piles, equal to the intended thickness of the covering materials: namely, in private roads and ordinary cases, one foot: leaving the piles standing in the middle of the trench or pathway; showing one foot of their length above the intended bed of the road, with another foot, or a sufficient length in the ground, to keep them firmly in their places, until the road be finished; the heads of the piles being the requisite guide to the covering.

This trench or pathway being the true middle line of the bed of the road, an unerring guide is given to the workman, and the business of the artist is at an end. The rest is mere labor, which may be performed, by ordinary workmen, under general directions.

FORMING ROADS.

The BED OF THE ROAD I make flat, or nearly so; the outer edges, only, dipping somewhat beneath the general level; the convexiture of the road, itself, being given with the rough foundation materials:—the beds of roads, here, being uniformly absorbent.

35.

35.

1793. JANUARY 29. There are, now, on this demesne, fortyfive acres of overgrown COPPICE WOOD; namely, wood of about thirty years growth. COPPICE WOOD.

The upper lands of this District being in general unfriendly to the Oak, after it has attained a certain growth, much of the spray and higher branches of this wood are beginning to decay. Instead of encreasing in value, it is probably getting worse, every year; —especially with respect to its bark, which is at present a valuable part of it. Twenty years, I find, is the usual growth of coppice wood, here; and, every circumstance weighed, it is perhaps, on the whole, the most eligible age, in ordinary situations in this District. AGE OF CUTTING.

The usual price of coppice wood, at twenty years growth, has been, of late years, ten to twelve pounds, the "customary acre" of the Country*: for wood growing on land of a quality, RENTAL VALUE.

* The "CUSTOMARY ACRE" of this District is calculated on eighteen feet to the perch: five provincial acres being nearly equal to six statute acres.

35. RENTAL VALUE OF COPPICES.

quality, equal to that of arable lands, which are worth ten or twelve shillings the *statute* acre. Of course, woodlands afford, to their proprietors, little more than half the annual rent of farm lands, of equal quality.

For suppose coppice wood of twenty years growth sells for ten pounds the provincial acre,—this is but barely equivalent to seven shillings an acre, received annually for farm lands; as, in the course of twenty years, the interest of the several annual sums received, and the accumulating interest thereupon arising, amounts to nearly half the principal: and, if a farther reduction be made for the difference between the provincial and the statute acre, we shall bring down this nominal rent of ten shillings, an acre, a year, to little more than five.

Twenty pounds, an acre, have been offered for twenty acres of the best of this coppice wood; under the conditions of the purchaser being allowed two years for the felling of it; —and to pay at Christmas for the quantity taken down in the preceding year; agreeably to the usual custom of the Country.

This farther delay of the receipt of the principal, and the attendant loss of interest, is a farther reduction of the annual rent of

the land; yet is seldom, perhaps, taken into the account, in calculating the net produce of woodlands. 35. RENTAL VALUE OF COPPICES.

On calculation, I find that twenty pounds, an acre, for wood of thirty years growth, does not neat more than seven shillings and nine pence an acre, received annually, and put out, at simple interest, at five percent. At four percent, and reckoning nothing for interest on the accumulating interest (which in a course of years would amount to a considerable sum), this price does not neat more than eight shillings and five pence an acre, a year, received annually as rent; even supposing the whole money to be paid down at the time of sale.

About thirty acres of this tract of woodland lie on a culturable slope; and would be worth, in a state of full cultivation, fifteen shillings, an acre: whereas, in a state of woodland, it has probably never paid more than one third of the money; and is not, in reality, worth more than one half of it. RECLAIMING COPPICE GROUND.

The propriety of reclaiming it, from its present unprofitable state, admits not of dispute; and the manner of bringing it into cultivation is the only point which remains to be determined.

To

35.

RECLAIMING COPPICE GROUND.

To dig up the roots entirely, so as to admit the plow, in the first instance, would not only be expensive; but, by bringing up the substrata, the cultivated soil would be debased, and rendered unproductive for a course of years.

But,—by clearing away the whole, level with the ground, or a little within the surface of it; and dressing this freed surface with lime, in order to dissolve, more readily, the leaves and decayed wood with which it is thickly covered; and by giving a degree of evenness to the surface with the harrow and the roller; sowing suitable grass seeds between the operations;—a sheep walk would be immediately obtained; and, in a few years, when the roots were decayed, and a turf formed over them, the land might be broken up with ease and profit *.

36.

COPPICE WOOD.

FEBRUARY 13. (See the last MINUTE.) A few days ago, I sold the whole of this coppice wood, at the high price of twentytwo

* For former Remarks on this Method of Reclaiming Woodlands, see YORKSHIRE, Vol. I. page 296; and for farther Remarks, see TREATISE on LANDED PROPERTY.

pounds ten shillings, an acre; and under the following favorable conditions *. 36.

CONDITIONS OF SALE OF COPPICE WOOD.

The whole to be taken down in two years; namely, in the years 1793 and 1794.—One hundred pounds of the purchase money to be paid down, each year, previously to the commencement of the cutting; one moiety of the remainder of the amount, of what shall be taken down in each year, at Midsummer; the other moiety, at the ensuing Christmas. The purchaser to be allowed a square perch for each tree standing among the coppice wood, and a quarter of a perch, for each standle of the last cutting. To finish the cuttings, by Midsummer, and to clear the ground, by the Christmas following, in each year, &c. &c.

Previously to this bargain, I had an offer of twenty pounds, an acre, for the whole, to be taken down in five years.

SALE OF COPPICE WOOD.

The difference between these two prices appears, on a superficial view of them, to be little more than a hundred pounds. But if

* These conditions are inserted, here, for the general purpose of giving the Reader an opportunity of comparing them with those of other Districts; and to assist, eventually, in drawing FORMS of CONDITIONS OF SALES; which, as FORMS OF LEASES, are at present, in a degree vague and unfixed.

36. SALE OF COPPICE WOOD.

if the interest of money, and the growth of the succeeding wood, be taken into the calculation, the superior advantages of the latter will be found to amount to more than two hundred pounds: as appears in the following statement.

First, fortyfive acres, at 20l. an acre, and taking down nine acres a year.

	Princ. £.	Int. £.		£.	s.	d.
1st Year,	180	00	Growth of Wood at 8s.	3	12	0
2d	180	9	———————	7	4	0
3d	180	18	———————	10	16	0
4th	180	27	———————	14	8	0
5th	180	36	———————	18	0	0
	900 Prin.	90		54	0	0
	90 Interest					
	54 Growth of Wood.					

£.1044 the total Advantage at the end of five years.

Secondly, fortyfive acres at 22l. 10s. and twentytwo and a half acres, a year.

	Princ. £.	s.	d.	Int. £.	s.	d.		£.	s.	d.
1st Year,	506	5	0	00	0	0	Growth of Wood,	9	0	0
2d	506	5	0	25	6	3	———————	18	0	0
3d	00	0	0	50	12	6	———————	18	0	0
4th	00	0	0	50	12	6	———————	18	0	0
5th	00	0	0	50	12	6	———————	18	0	0
	1012	10	0	177	3	9		81	0	0
	177	3	9	Interest.						
	81	0	0	Growth of Wood.						
	1270	13	9	total Advantage at the end of five years.						
	1044	0	0	as above						
	£.226	13	9	superior Advantage *.						

* These Statements are published, for the instruction

37.

37.

SECURING BUILDINGS.

FEBRUARY 14. The side walls of an ancient monastic building having fled from the upright,—by the buttresses in front having given way at the foundation, and by the back wall being impelled forward, by a load of earth and a road, behind it,—(the ground, on the outside, being several feet higher than on the inside) I have secured, in the manner hereafter described.

What rendered this case the more difficult was the circumstance of both walls requiring support; yet both of them inclining the same way; so that there was no *tie* to be got, nor any *purchase* to be had.

If the front wall had been stayed, by fresh buttresses; still the back wall (against which the pressure immediately acted) would have remained, in a degree, unsupported. There are, in this, as in other Gothic buildings, no binding beams to the roof; nor any other tie between the two walls, than the floor beams of a chamber. Beside, buttresses, in front,

of those, to whom calculations of this kind may not be familiar. The use of them is obvious.

37. SECURING BUILDINGS.

front, would have been inconvenient, and unsightly; and, like other supports on the *outsides* of buildings, would have been liable to the drip of the eaves, and to the effects of the weather.

The expedient, which I hit upon, was that of raising strong BUTTRESSES, on the INSIDE OF THE BUILDING, against the back wall; which is thus firmly stayed, and effectually prevented from farther inclination; and, at the same time, firm purchases are obtained, for the purpose of tying in the front wall; which has been done in such a manner as may prolong the duration of the building for a length of time.

The ties, in this case, are large oak floor-beams; which are securely fixed, in front, to the old buttresses; and, to the back wall, by means of large blocks of granite or moor-stone; in shape, the lower frustrums of square pyramids. These blocks are laid in, flush with the outside of the wall, and with their bases outward; beds or recesses having been accurately cut out of the rocklike substance of the wall, to receive them.

Through these blocks, pass strong iron bars, or pins; which are firmly strapped to the ends of the beams (bearing on the tops of

the buttresses); and which are secured, and the ties drawn tight, by means of strong wedges or keys, drawing against broad firm disks of iron, bearing against the perforated blocks; which thus operate as dovetails to the ties. 37. SECURING BUILDINGS.

In building these buttresses, the foundations, as well as each course of stones, were made to dip towards the wall, in the same proportion as the buttresses incline, or batter: the courses being at right angle to the line of batter, or face of the buttress:—a principle which ought not to be deviated from. For, by adhering to it, the resistance is rendered the greatest; and, by placing the buttress in a falling posture, towards the wall, it settles the more firmly against it; while, by toothing the one into the other, as has been done in this case, the whole settles, intimately and firmly, into one incorporate mass. BUILDING BUTTRESSES.

1804. It having, since, been deemed expedient to fresh roof, and alter the floors, of this building, its walls have been set upright, by a skilful superintendant, in a most mechanical and effectual manner. SETTING UP LEANING WALLS.

Nevertheless, the foregoing Minute is suffered to remain, entire; as the method it

37. SETTING UP LEANING WALLS.

describes may, on many occasions, be found highly useful. To set the two side walls of a LEANING BUILDING upright, and bring them back to their original posture, the roof must be disengaged from them, and the building be gutted; so as to leave the bare walls free from *ties* of every sort. Whereas, the means above minuted may be applied, without disturbing the existing state of the building.

For setting up SINGLE WALLS that have acquired a leaning posture (as garden and yard walls), the method now under notice will generally be found most eligible, in all cases; and ought to be universally known to every bricklayer and country mason.

It would be difficult to convey, sufficiently, practical directions, for restoring inclining walls to their upright posture, without diagrams. But the principles on which it is performed may be thus explained.

In the front of the wall,—on that side to which it inclines,—strong planks or slabs are firmly bedded in the ground, with their ends dipping towards the foundation of the wall; and strong spars, or other firm pieces of wood with one straight side, are offered up against the wall; while stout firm shores are placed, in a leaning posture, between them:

the three pieces thus tending to form a triangle; tho it is not necessary that the two former should meet at the inner angle. 37. SETTING UP LEANING WALLS.

The upper end of each shore is pointed, in a half-wedge-like form; and entered into a bird's mouth notch, in the upright or nearly upright piece: the lower end or foot of the shore having a notch, or open mortice, in the middle of it, to admit the point of an iron crow, or other lever.

The angle formed between the shore and the base on which it rests, being made somewhat less than a right angle, and the foot of the shore being forced forward upon the base, its upper end will of course press against the upright piece, and thus tend to force back the wall into its proper place; and a number of such FORCING SHORES being placed along the wall, according to its length and strength, a power is gained which scarcely any weight or strength can resist.

Nevertheless, to lighten the work, the back part of the foundation of the wall is cleared, and some stones pulled out above the offset, so as to form a horizontal groove or fissure, from end to end, and in depth to nearly half the thickness, of the wall; in order to give it liberty, in this part, to yield to

37. SETTING UP LEANING WALLS.

the force which is applied on the opposite side: the width of the fissure being in proportion to the acquired inclination of the wall; which is readily ascertained by a plummet line let fall from the top of it, on the leaning side. And, to prevent the wall from being forced over, beyond its poize, shores are placed behind it, so as to receive it, when it has regained its perpendicularity.

Those preparations being carefully made, the forcing shores in front, are operated upon, in succession, and by little and little, until the wall appears, by the eye, to be nearly upright; when a mason's pumb-rule is applied to it, and its perpendicularity, in every part, nicely adjusted.

The wall is then firmly underpinned, on both sides;—the fissures, whether formed for the purpose, described above, or by the rising of the wall, on the opposite side, are filled up, and wedge-shaped stones driven in with a large wooden beetle, to give the required stability. If the foundation, on the side to which the wall leaned, be crippled, or is found to be in any way defective, it is proper to rebuild it; as a security to the wall, in future.

38.

SHEEP FARMING.

TEMPORARY GRASS LANDS.

FEBRUARY 16. On a farm on which SHEEP are a principal object, TEMPORARY LEYS productive of sheep food become, likewise, an object of the first magnitude. The practice of mowing, the first year, leys intended for five or six years duration, is a crime for which nothing, but necessity, is admissible as an excuse. By this improvident step, the sward or turf is rendered thin of plants, for several succeeding years. Not only the more delicate species of herbage, which seldom fail to rise after a short course of aration, are liable to be checked or smothered, by the luxuriant growth and impervious shade of cultivated herbage; but the cultivated herbs themselves, are in some certain degree weakened, and their number decreased; especially if the soil be much exhausted, or be out of tilth.

On this farm, a striking instance of the mischief arising from the practice of mowing such leys, the first year, is at this time most evident. The young ley grounds, which were mown last summer, may be said to be now unoccupied; except by daisies, groundsel, and a few other weeds. One of them, tho

38. TEMPORARY GRASS LANDS.

the land is of a superior quality, is not worth, for the coming year, five shillings an acre. Whereas, had it been pastured down, close, last spring and summer, it would, in all probability, have been worth five times that rent—for this and several succeeding years, —as a sheep pasture. But see MIN. 60.

PLAN OF FARMING.

To every farm, on which cultivated leys, of five or six years duration, make a part of the plan of management, the most desirable appendage is a sufficiency of MEADOW LANDS, or PERENNIAL MOWING GROUNDS, to furnish the farm with a supply of hay, without being under the necessity of mowing temporary leys, the first year; and happily circumstanced is the farm, whose situation, with respect to the quality and quantity of water it commands, enables it to produce, by IRRIGATION, a sufficiency of hay, to carry its requisite livestock, through the winter months.

WATERED MEADOWS.

The demesne lands of this estate are fortunately in this situation. Some twenty or thirty acres of them have been more or less watered, time immemorial; and with water of a superior quality.

NATURE OF WATER.

The effects of the slate-rock waters of this District are superior to those of any others I have had an opportunity of observing; the

chalk waters of the Southern counties excepted. There are slopes of hills, on this and the surrounding farms, which are now as green and *gross*, to the eye at a distance, as the rankest wheat in May *.

38.

NATURE OF WATER.

STUDYING SITES OF IMPROVEMENT.

Seeing these advantages, I have been assiduous to ascertain the facts respecting the possibility of watering the different parts of this estate; and I found, some time ago (see MIN. 27), that almost every acre of it is *capable* of being flooded, artificially, by running water. The QUANTITY OF WATER, however, that can be conveyed to it, tho sufficient to furnish pasturing stock, with a valuable supply of beverage, is too small for the purposes of irrigation.

But the mischiefs arising from the practice of mowing ley grounds, the first year, having lately pressed more closely on my mind, I have been studying, with redoubled attention, the capacity of the different grounds of this farm, with respect to water:—and I have discovered, that a sufficiency of them, to answer, fully, the purposes required, are capable of receiving an abundant supply; and

* It is everywhere observable, that the steeper the slope, the more obvious is the effect.

38. and that such a supply may be brought to them, at a small expence.

WATERING SLOPES.

The waters which are already within the farm, claiming, however, the first attention, I have, hitherto, been endeavoring to turn them to the best advantage; by conducting them properly over the lands which most command them.

This has been effected by taking the water out of its natural channel, at different heights, and conveying it to the several stages of the slopes, over which these lands are spread, by means of main channels, leats, or artificial rills; for the purpose of feeding the operative trenches, which distribute and spread the water over the faces of the slopes.

PROCESS OF IRRIGATION.

In setting out and forming these conducting channels, I have found the plummet level a safe and ready assistant; and the descent of one measure in a hundred most eligible;—as giving a lively motion to the water, and a firm bottom to the channel, without wearing away its sides.

In conducting channels of this intention, across grounds much varied in surface, and where a degree of ornament is required to be joined with use, as was the case in this instance, some attention is requisite. If the

38.

PROCESS OF IRRIGATION.

ground be implicitly followed with the level, not only a circuitous length of channel and a waste of land, but short angular unsightly bends, are produced. If, on the contrary, straight lines are attempted across a varied surface, the labor of raising the hollows, and sinking the knolls, is great, and the beauty of the line is wholly lost. Hence, where the ground does not naturally afford the given line, the MIDDLE COURSE is proper to be chosen.

In this instance of practice, I have found it best to set out the line, first by the level, crooked or straight, as the ground directs; then, to give it the required direction, by the eye; and, afterward, to correct the eye with the plummet; lest the line should lie much too high or too low, in any particular part:—for a steepsided trench is liable to be trodden in by cattle, and a sharp ridgey bank is equally liable to be torn down by their tread: while, over a wide shallow channel, with a broad swelling bank, on the lower side, they step without injury. A concave channel, three feet wide, and six or eight inches deep in the middle, is capable of conveying a considerable body of water, through the area of a meadow (in a case where

38. where such a channel may be found expedient),
PROCESS OF IRRIGATION. yet is not only safe from the tread of pasturing stock, but may be freely rode across, without injury; or any alarm to a timorous rider.

LAYING OUT WATERED LANDS. But, in watering the hangs of hills where a blank site is given, and where no fences already exist, there are few cases, perhaps, in which the main channel should be liable to the passage of stock. The uppermost is, of course, laid as high as the flowing level from the source will allow, and necessarily divides the watered from the unwatered lands; and is, of course, a *given* line of fence. If the valley be narrow, or the foot of the slope which commands the water be short, one main conducting trench is sufficient. For by running parallel trenchlets along the face of the slope, at once to collect the dispersed waters, from above, and to distribute them more evenly below; and by letting down a supply of water to the lower trenchlets, when the upper side of the slope is sufficiently watered; one supplying channel is sufficient to water an ordinary field's width of land. And, if a continuation of the slope require it, another channel, and another

fence, may and in general ought to run parallel to the first. 38.

LAYING OUT WATERED LANDS.

There are two reasons why fences of this sort should be placed on the *upper side* of the conducting rill. The water is more easily let off, into the working trenches, than it would through a fence; and especially through a hedge,—whose roots, and the holes of the vermin they harbor, would be the cause of a continual waste of water.

Viewing fences, thus winding along the wavy surface of a slope, in the light of ornament, a light in which they ought to appear within this demesne, an additional motive, for running them along the side of a wavy rill, arises. If the broad swelling bank, which ought to accompany such a rill on the lower side, were formed into a walk,—determined in width, and always kept dry, by a working trench, on its lower margin,—the bank would be rendered firm, by the pressure of the foot, and, in this instance, a delightful stroll will be (1804, has been) obtained, at an easy cost.

39.

39.

39.

PLOWING WITH TWO OXEN.

FEBRUARY 20. I have at length the pleasure of seeing a TWO-OX PLOW completely in its work. Two oxen, in yoke, with a single chain passing from it, to the draft iron of the plow, and driven, with whip reins, by the plowman, have been employed, during the last fortnight, in giving the first fleet plowing of turnep grounds: a work which they perform with ease and dispatch.

This is the simplest and cheapest plow-team I have yet set to work. The yoke and single chain, if made light and well fitted to the oxen, are, for a two-ox plow, in light work, much preferable to collars, traces, and splinter bars; which are complex, expensive, and for ever entangling with the reins; and the splinter bars are a heavy incumbrance, at the head of a light swing plow.

SEPTEMBER, 1794. This summer, I have had two of these admirable plow-teams, in full work: employing them, chiefly, in stirring fallows; which they do with great effect: plowing eight or nine inches deep, with plows which clear their work. To make the labor the less, and the operation

the more effective, the slices are cut narrow; not more than six or seven inches wide; by which means this cheap and easy plowing becomes nearly equal to spade work;—more effective than almost any number of the partial plowings, usually given to broken ground, in this District. 39. PLOWING WITH TWO OXEN.

40.

MARCH 12. In the Autumn of 1791, I designed and set out, and have now brought into a train of finishing, a suite of FARM YARDS and BUILDINGS, on a large scale. See MINUTE 29. FARMERY OF BUCKLAND.

I have not leisure to register, in detail, the minutiæ of this improvement; but a few particulars strike.

A DUNG YARD of a semi-octagon form, inclosed, on one side, with cattle sheds, and, on the other, by a line of stables and farm offices; with opposite gates and a carriage road, by the side of the latter; is, in every point of view, in which I have yet seen it, very eligible. CATTLE YARDS.

BATTERING FOUNDATION WALLS. The surface of this yard, by reason of the form of the ground (see page 206), necessarily rises, in BUILDING.

40. in one part of it, nine or ten feet, above the
BUILDING. road, which passes on the outside of the sheds; consequently, the weight of earth, encreased by the weight of the sheds, and that of the cattle they may contain, rendered it necessary to counteract the inward pressure; and this has been effectually done, by carrying up the foundation of the back wall of the sheds, so as to lean against the load, and thereby act as a general buttress against the pressure. This foundation wall lessens, from four feet at the base, to two feet at the floor of the sheds, and the level of the yard; not with a straight line of inclination; but with a gentle curvature, resembling that of the spreading base of a well grown tree.

RAKING the ROOFS of BUILDINGS. In the extreme aukwardness of the natural site of these yards lay many difficulties. This range of sheds was to be built downward of a slope (not across it) which was much too steep to make the building "rake," or incline, with its descent: yet, to have brought the ground to a level, would not only have been expensive, but would have rendered the communication, between this and the yard below it, inconvenient; and a break in a roof is always to be sedulously avoided. A middle

course was therefore to be taken. And finding that the ancient, monastic building, in the front of which these sheds were to be erected, raked very considerably, it was deemed expedient, whether with a view to utility or appearance, to give the new buildings the required degree of inclination; thus steering between two inconveniences: a principle in business which may often be well adopted. 40. BUILDING.

Some inconveniency to workmen, it is true, arises from raking the roof of a building: the level and the square (their ordinary guides) becoming useless. But, by drawing a raking line upon the face of the common level (as in setting out roads and water courses), the wall-plates and purlins may be accurately adjusted to the required inclination: and the bevel and plumb-rule will readily set the principals and rafters upright.

The proper WIDTH of SHEDS, for full-grown cattle, with a three-feet passage before their heads, is one statute rod (sixteen feet and a half) from out to out of the building; the back wall (in this case of stone) being two feet thick. CATTLE SHEDS.

The PILLARS of these sheds are of oak, and eight inches square, set *upon* blocks of moor-stone; out of which rise short iron pins, to

40. CATTLE SHEDS.

keep the feet of the posts in their places; the tops of the stones declining gently from the pins, to prevent any water from lodging upon them; and thereby to elude, as much as possible, the decay of the timber.

The proper WIDTH OF A STALL, for two middle-sized working oxen, is seven feet. Cows, tho of smaller size than oxen, require as much or more room, for the conveniency of milking them, and suckling their calves. A danger of making stalls too wide is that of the cattle turning round in them; and by that means placing themselves, in an aukward and dangerous situation, with respect to their fellows. This danger, however, is to be guarded against by a post rising in the middle of the stall, immediately before the shoulders of the cattle; in a line with the front posts of the PARTIAL PARTITIONS *: and a post in this place may be found useful to fasten calves to, during the time of suckling.

The proper LENGTH OF STALLS, for Devonshire oxen, of the larger size, is nine feet; namely, three feet the width of the trough, and six feet the platform, or resting place; with a depression, or descent, of one to two inches, from the outer rail of the trough, to

* See MID. COUNT. Vol. I. p. 30.

a break or drop in the pavement, six inches deep;—formed by strong flat slate stones, set on edge; nearly perpendicularly, but somewhat inclining to the stalls. 40. CATTLE SHEDS.

From the bottom of this break, to the line formed by the base stones of the pillars, the PAVEMENT takes a gently convex or swelling form, and thence descends by a continuation of the same curve, to the brink of the dung pit; into which, of course, the water, falling from the eaves of the sheds, readily finds its way.

On the higher side of the yard, the DUNG PIT shelves, with a gentle descent, from the bases of the pillars; but, on the lower side, it was found convenient to sink it, more abruptly, from a broad path, or gangway (six feet wide from the pillars), to the depth of two feet, or more. The bank or steep side of this dung pit is formed of the same slate stones, as are the walls of the sheds; not, however, perpendicularly, as bank walls of this intention are frequently carried up; but very much battering, or falling back towards the sheds; the angle of inclination, from the perpendicular, being not less than thirty degrees. The foundation of this wall was dug, and the courses of stones laid, not horizon- DUNG PITS.

40. DUNG PITS. tally, but at right angle, or square, with the line of reclination; the earth being firmly rammed in behind, as the wall was carried up. The uppermost or coping stones are large and strong; serving as bonds to the wall, and as a buttress to the convex pavement, above mentioned; which presses against these coping stones, on one side, and against those which form the outer edge of the platforms of the stalls, on the other, as an arch bears on its butments *.

On a stage below this principal dung yard, and on the upper side of the barn, a STRAW YARD, for loose cattle, and store swine, is shaped out of the slope of the hill on which this farmery is situated. And behind the range of offices, which form one side of the dung yard, is another straw yard. And between these two straw yards is a MILKING and WOOD YARD.

WATERING YARDS. These three yards are WATERED, by means of the made rill, which has been spoken of, in MINUTE 27; and which passes through these yards, in channels, partially or wholly open, for the use of stock; and thence

* 1804. The whole of this mason's work and pavement remains perfectly firm. The same principle of construction may be well applied, on many occasions.

40.

WATERING YARDS.

through a covered drain, to its natural channel. In passing through the principal straw-yard, it runs along the top of a dwarf wall, or offset (at the foot of a fence wall), twelve or fifteen inches high, from the level of the yard; and about fourteen inches wide; with a channel (formed with wide flat slate stones), six inches deep on the back part, but shelving upward to the surface in front; and divided by upright stones, placed edgeway across the rill; which has, here, a considerable descent: consequently, each obstruction forms a small pool, or drinking place; eight or ten head of cattle being able to drink, at the same time, and with the most perfect conveniency.

Finding, by experience, that too copious a supply of water is, on many accounts, troublesome, in a rill of this intention, I ascertained the exact size of the stream required, by means of gauges of different dimensions, set across the channel. And having found, that a bore of two inches diameter gave the desired supply, a perforated stone with a bore of this diameter is fixed, in a frame of oak, and placed across the channel, above the yards, with a waste-water channel, immediately above it: so that an inordinate supply of wa-

40. ter, sent down by rains or otherwise, is effectually prevented.

FARM YARD ECONOMY. In this yard, the stall cattle are watered, and allowed to amuse themselves, in the middle of the day; while the store swine are collecting in the dung yard, whatever the stalls of the stables may afford them; being carefully kept out of that yard, while the cattle are in their stalls: a principle of management which can never be departed from, with propriety.

YARD LIQUOR. The superfluous rain water, or YARD LIQUOR, of these several yards, passes off, in the following manner. That of the dung yard (as well as those of the inferior yards) passes, first, into the principal straw yard; in a pit, or hollow part, of which it makes its first deposit. From hence the collected waters are led through paved courts, and a stable yard,—collecting in their passage, and by proper assistance, in times of rain, the sulliage which such places are ever accumulating,—to a common receptacle; where, having deposited their grosser feculencies, they are occasionally let off into the main conducting channel that has been mentioned, mix with its stream, and assist in fertilizing the meadow lands which lie in the valley, below.

CONTINUATION OF MINUTES

IN

THE WEST OF ENGLAND.

(First published in this Edition.)

41.

BARN-FLOOR PLANK.

1794. MAY 27. It is a prevailing practice to set out large valuable timber trees, for Barn-floor Planks; which ought not to be laid down more than six or eight inches wide. A broad plank is liable to warp, and thereby to render the floor uneven; the corn lodged on the hollow parts being thus prevented from receiving the efficient strokes of the flail. Therefore, to avoid this bad effect, judicious workmen slit down wide planks, so as to reduce them to a proper breadth. Another evil consequence of cutting up large fullgrown timber trees, for thrashing floors, is that of the wood being more liable to a brittleness of texture—a shortness of grain—at the center or heart, than is that of youthful growing trees; which it is well known, by

41. men of experience, ought ever to be chosen for the purpose of thrashing floors: in order that the planks may be able to resist the severe action of the flail with greater endurance.

BARN-FLOOR PLANK.

On entering a grove of young growing timber, with the intention of pointing out suitable trees, for the purpose under consideration; but finding few of size, and these proper to be reserved, for more important uses, while numberless small underling trees stood in the way of their growth; I determined to form a thrashing floor with WEEDLING PLANTS; namely, timberlings of seven or eight inches, timber-girt; or about thirty inches in circumference. These, if tolerably straight, as closely growing grove trees generally are, cut out into three planks, of two inches in thickness, and from five to nine inches wide; free from sap: underling trees having a greater proportion of heart, than have those of a freer growth.

1804. I have attended, from time to time, to the wear of this floor; and have found that it is equal, in durability, to floors made of the most valuable timber; a fact by which the proprietors of estates may frequently profit; so long as wooden thrashing floors may be deemed requisite.

42.

LIFE-LEASE-HOLD TENURE.

1794. JUNE 11. Some days ago, a small holding "fell into hand," by the death of the lessee; his being the last of the three lives on which it has been, heretofore, sold: a short notice of the transaction which has taken place, in consequence of his demise, will serve to convey some particulars of a species of business, which is continually occurring in the rural concerns of this country.

The executors of the deceased (his sons) applied for the refusal of the farm; and asked (or indirectly claimed a right) to occupy and depasture the premises forty days after the demise. This was of course refused; the right of possession terminating with the last life. But to keep the tenement out of hand, and gain time to determine on the proper disposal of these lands (this being a detached holding—not the residence of the late occupier) as well as to accommodate the executors of the deceased, it was agreed that they should keep possession until Lady day (the customary time of the removal of tenants in this District), they paying an estimate value

42. for the pasturage (of which the holding now wholly consists) from a week after the demise (a few days being usually given) until that time.

LIFE-LEASEHOLD TENURE.

This morning, a man of business—an experienced farmer—put a value upon the pasturage; the executors bringing another man to value against him. The valuers had also instructions to look to the condition of the fences and the gates of the farm; and to put down how many of the latter are wanting, and how many require repairs.

DILAPIDATIONS.

In the mean time, the dilapidated state of the buildings was attended to; each party having brought a mason and a carpenter to make the required estimates of repairs to be done, by the executors of the deceased.

MARKING TIMBER FOR REPAIRS.

The quantity and particulars of repair being agreed to, and the estimate of timber required being made, trees were marked near the spot, suitable to the several purposes: the two carpenters attending; and agreeing to the sufficiency of the quantity and quality of the timber trees marked.

MANAGEMENT OF ESTATES.

Thus, in two hours, these premises have been put in a train of improvement; or at least in a state of safety. The award to be delivered in by the referees (for such they are

in effect) will be binding to both parties. No complaint, misunderstanding, or law proceeding, can now take place. 42. MANAGEMENT OF ESTATES.

General Remark. Through the want of a few hours, thus profitably and agreeably spent, from time to time, this estate has heretofore been let down to its present low condition, with respect to its buildings and fences.

43.

1794. August 10. Notwithstanding the drought of this summer, much wheat is blighted! In many instances, the *straw* is black almost as bean halm. It was not perceived, and did not probably take place, until the late showery weather. This may serve to account for the apparent fulness of the *grain*, which does not seem to have received much injury. BLIGHT OF WHEAT.

Sept. 1. Now, the grain being dry, it is evidently much injured: being small and shrivelled. Had it been cut as soon as the malady was perceived, the grain would probably have been of a better quality.

For other instances of a similar nature, see Minute 56.

44.

44.

44.

PLANNING FARM-STEADS.

1797. JUNE 30. How few men are equal to the task of planning a convenient Farmstead. Mr. ——-, I remember, exclaimed, on seeing the —— of ——'s chaos of farm offices,—" I never saw a new farm yard worth a farthing."

Yesterday, I was favored with the inspection of a plan for a suite of farm yards and buildings, on a large and expensive scale.

In this instance, it is true, the proposed arrangement may claim a regularity of outline; which is nearly quadrangular; but in the disposition of the several parts of which it is composed, it is the most preposterous thing that I recollect to have seen. Every part may be said to be out of place; or to be placed with the wrong part foremost: every principle of facility and dispatch being overturned. The cow stalls and the dairy room are thrown into opposite angles. The cart-horse stable and the working-oxen stalls are placed nearly in the same inconvenient manner, with respect to each other; and, between them, the cow stalls and calf pens; —at a distance from the dwelling house.

44.

PLANNING FARM-STEADS.

The cart shed is placed on the back part of the yard,—behind the dung pit! while buildings that may be put any where (or ought to be placed out of the way) occupy the side next to the principal entrance,—the main road to the farm lands. And, among other improprieties of arrangement, a thrashing-mill barn is placed with its wrong end to the corn rick-yard; with a straw house stuck, as an excrescence, to its side.

In planning farm offices, there are certain rules which cannot be deviated from, without violence.

The COW STALLS, CALF PENS, HOG STIES, and the DAIRY ROOM, should communicate easily with each other; and ought to be placed as nearly together, as given circumstances will allow. The men and the women servants ought not, on hours of business at least, to have any unnecessary communication with each other; but should be separated as much as may be; in order that they may pursue their respective employments, without interruption.

The CART LODGE ought to stand in a place which is easy of access; and, generally, across the principal line of approach, from the farm lands to the stable. In this situation the carriages

44. PLANNING FARM-STEADS.

carriages are drawn under cover, without inconvenience. Place it in the way to the stable, and construct it so that carriages may be drawn into it, with the team; and the most heedless lout may be prevailed upon to lodge them in safety.

THRASHING-MILL BARN.

With respect to a THRASHING-MILL BARN, rules equally evident have arisen, from what I lately saw at ——, and from studying the plan under consideration.

It ought, on the general principles of straight lines, and lofty roofs, in rural architecture, to form one long-square building;—to be placed with one end, or one side (or both) toward the corn stack-yard;—and to be provided with a chamber floor, reaching from end to end: the height of the floor being regulated by the height of the wheel and the machinery of the mill; and the width of the barn, by the required diameter of the wheel; which ought to occupy the ground floor of the end next to the rick yard. The machinery of the mill should of course be placed contiguous to the wheel, with a vacant space on the ground floor, to receive, and in which to dress, the thrashed corn: the remaining space of the ground floor being a receptacle of straw, into which the mill ought to throw it.

For the sketch of a farmstead, including a thrashing-mill barn, see TREATISE on LANDED PROPERTY. 45. THRASHING-MILL BARN.

1804. A quadrangle of farm offices was planned and erected, conformably with the above principles; the thrashing-mill barn occupying one of its outer angles; which is embraced by the rick yard; so that the unthrashed corn may be conveniently housed, either at the end or the side of the barn. And it may be useful further to remark, that the stack frames are so situated, with respect to the building, that four or five large ricks may be housed without the expence of team labor, or the interruption which it occasions. An empty waggon being placed under one of the doors, which open into the upper part of the barn, it is loaded to a convenient height with corn from the rick to be housed; and, upon the platform, thus readily made, the contents of the stack are thrown; and from thence, with equal facility, into the barn.

45.

1797. JULY 27. TRAVELLING NOTES, in crossing DARTMORE; from MORTON HAMPSTEAD, FOREST OF DARTMORE.

45. stead, by Two-Bridges, towards Buckland *.

FOREST OF DARTMORE.

Enter the Chace or Forest of Dartmore; and mount its lower range of hills. The soil a dark loam; the subsoil brown rubble, or fine loamy gravel.

How admirably adapted to rabbit warren are these lands. The surface swelling; with loose ground to work in; with stones on the surface for fences; and with a sufficiency of soil, for cultivating winter food.

A few small mountain sheep appear, on this part of "the Moor;" resembling those of Okehampton. See Vol. I. p. 343.

Much dwarfish heath is seen on the lower hills, or outskirts of the Moor.

Now plots of stoney surfaces meet the eye: some of the stones large; but, in general, not more in quantity are seen on the surface, than would fence the lands.

Reach the flattened heights: at present, covered with green herbage! But it is mostly coarse: much *Nardus stricta* (mat-grass) and *Juncus squarrosus* (heath rush), but scarcely any heath appears on these higher grounds;

* I print these extemporary notices, as they will serve to convey further information respecting this interesting passage of the West of England. See Vol. I. p. 320.

45.

FOREST OF DARTMORE.

which, at some distance, resemble chalky downs, rather than noncalcareous mountain heights. They are, in strict comparison, the middle rank mountains of Merionethshire, and the higher hills of South Wales.

Several cultivated plots now appear, in the dips and hollows, which divide the rotund swells that occupy this part of the mountain. Nothing of abruptness is seen. The entire view exhibits a flowing, wavey surface.

Some scattered habitations, with a "stream work," or superficial tin mine; and more cultivation. Also extensive inclosures: pasture grounds walled in: doubtlessly, encroachments of the forest lands.

See a cultivated flat, or shallow bason, at some distance on the left: the head of a valley that dips to the southward.

Many well sized thick sheep, on this part of the moor,—variously headed.

A few mountain horses scattered on the hills: and some clean young cattle.

A deep peat bog, near the road: the first, of any considerable size, observed.

Some *fat* wedders! of the horned or house-lamb breed. But the present season is very favorable to the pasturage of these hills.

Another habitation and inclosures.

45. FOREST OF DARTMORE.

More young cattle, on well looking, down lands. Yet the soil is here blackish. But the subsoil is still a fine brown loamy gravel, or rubble.

An extent of stoney surface: fit for planting, only. With a wide boggy valley, on the right; near the turn of the water.

What charming plowing grounds might be had on these hills,—if the climature could be meliorated,—by sheltering plantations, and skreen fences: a gently swelling surface, and in most parts a free soil; with moory plots to be converted into mowing grounds. But manure, as well as a better climature, is at present wanting.

Descend gently towards the Dart (unseen) —at a few miles' distance; and cross some of its tributary torrents.

The near views are still green downs, stocked with small herds of young cattle. Some good two-year-old and three-year-old steers and heifers. And another extensive inclosure!

In the distance, to the right, some ragged "tors" rise to the view*; with a black mountain height, in front.

* One of them is named "PARLIAMENT TOR;" from the public meetings, relating to the affairs of the forest, having been held upon it, in former times. A granite

45.

FOREST OF DARTMORE.

On the left, see part of Judge BULLER's farm and improvements †; and, at some distance forward, across the Dart, TOR ROYAL, Mr. TYRWHITT's extensive improvements.

Pass a deep peat bog, and a kiln! Quere to produce peat ashes for manure?

A South-down sheep! or one so much like the Sussex breed, both in head and carcass, as not to be readily distinguished, at a short distance, from the best of the old South-down breed.

Pass the inn, at Two-bridges; cross the Dart (here a brook of moderate size); and leave the Tavistock road to the right.

Climb the black hills, westward of the Dart.

table of extraordinary size, round which the Parliament were wont to sit, and at which the Dukes of Cornwall may have presided, had long remained sacred and untouched;—unless with the finger of awe, by the simple inhabitants of the forest, or the admirers of ancient relics who have visited it;—has lately fallen a sacrifice, under the unhallowed hands of a "modern improver!" Not borne away as a trophy to aggrandize his improvements; but torn into fragments, and applied to an ordinary purpose!

† Let it not be understood, that the foul deed, mentioned in the foregoing note, was wittingly done, by the late Sir FRANCIS BULLER; but, for his use, by the most mischievous animal *on the face* of the earth,—a *miner*.

45. FOREST OF DARTMORE.

Dart. The land coarse and heathy. The surface rough, and set with large blocks of stone. The substrata apparently watery and cold. Altogether impressing an idea that this part of Dartmore has had an origin different from that of the main body of the mountain: of that part of it, at least, now travelled across.

Reach the turn of the hill. An extensive and grand view is commanded. The more strongly featured parts of Cornwall,—Plymouth Sound, and its accompaniments,—the estuary of the Tamer,—and the entire District of West Devonshire,—meet the eye.

A pale granulous substratum is here observable. Apparently decomposed granite; or the materials of granite uncemented.

The surface still stoney.

Several of the grotesque "tors," or rough piles of naked rocks, which give a savageness of aspect to the Western front of these mountains, are now within view: some of them near at hand. An extraordinary variety of natural surface!

Meet cultivation creeping up, from one of the Western cooms, or mountain-skirt valleys, and spreading over the face of the hill.

Descend steeply towards Walkhampton; and drop into the valley of the Tavey.

46.

VALUING LAND.

1799. MAY. The practice of Devonshire, in the valuation of farm lands, is entitled to particular notice; the estimate being made, not on the *neat rent* to be paid to the landlord; but on what is termed the "gross rent," which includes *taxes* and *repairs*.

Thus, the gross rent of a small farm (lately fallen into hand) has been estimated (by a provincial valuer) at fortysix pounds; and the acting manager of the estate has calculated the neat rental value, in the following manner.

The gross rent - - - -				£46	0 0
Land tax -	2	9	0		
Poor's rate	3	12	11		
Church rate	0	10	5		
Repairs annually (the valuer's estimate) -	2	0	0		
				8	12 4

The neat annual rent to be paid by the tenant - - £37 7 8

This is a good general principle of valuation; especially when the tenant is bound to

 repair.

46. repair. It has doubtlessly arisen out of the
VALUING LAND. West-of-England practice of granting life leases; under which tenants in general pay all outgoings. It supersedes the necessity of a valuist's enquiring into the state of taxes; with which a resident manager is supposed to be acquainted; if not, he can more readily gain the requisite information, than a stranger.

LIFE LEASEHOLD. And another interesting particular, in the practice of Devonshire, arises from the lapse of this tenement. Four of its fields were sown with corn, before the last life ceased.

By the custom of the country, this corn belongs to the representatives of the life lessee; and the incoming tenant expects twenty shillings, an acre, for the "standing" of these crops: namely, the use of the lands they occupy: a valuation which the lessee's executors think too high. But the land is of high value (as arable land), namely, about thirty shillings, an acre; and the estimate, I think, ought rather to be deemed low.

REMARK. In cases of this nature, however, *the state of the land* ought, in equity and strict justice, to be the principal guide, in the valuation. If the ground is in good tilth and condition; especially if it has been well fallowed and manured for the crop,—it

would be unreasonable to expect any further requital, for the temporary use of the land it occupies. On the contrary, if the ground has been fouled and impoverished by repeatedly cropping it, the whole rent, or a greater value, might well be demanded: some regard being had to the prospective value of the crop; a large crop impoverishing the land more than a small one. 46. LIFE LEASEHOLD.

47.

1799. OCTOBER 22.. TRAVELLING NOTES, through the SOUTHERN PARTS of SOMERSETSHIRE; from Stourhead, by Castle Cary, Somerton, Langport, and Ilminster, to Chard. SOUTH SOMERSETSHIRE.

STOURTON TO CASTLE CARY.

(About Ten Miles.)

Leave the strongly featured grounds and fine woods of Stourhead; entering a straight road—long as the eye can trace—leading through grassland inclosures.

The land peculiarly cold: a true woodland soil.

Mean cows, in mean pastures.

What an extent of cold grass lands; lying

47. SOUTH SOMERSETSHIRE.

quite flat! The herbage, of course, weak, yet much of it mown: many globular hay stacks appear: evidently a dairy District.

Still the same description of country! cold grass inclosures, with hedgerow oaks. The stock cows—apparently of a mixed breed.

Reach the end of the straight road (five miles in extent), which is terminated by Lord Ilchester's demesne; and was formed by his Lordship; who liberally allows travellers, from Stourton, to use it.

Wind round the grounds of Redlynch; the road steeply descending, to another stage of flat cool land: with meadow hay, now in small cocks!

The road, here, of soft limestone; and presently enter upon thin limestone land; in this low situation!

The corn mostly in, and thatched.—Some blackened barley, however, is still seen in the field!

Wheat stubbles, here, as throughout the West of England, occupy narrow ridges.

Arrish mows of wheat—still out.

Some warm good grass lands: the soil deep brown loam, on soft limestone.

Now, orange-colored fallows are seen, on

either hand: also some clean good turneps: the first observed. 47.

SOUTH SOMERSET-SHIRE.

Many horned sheep: the horns drooping.

More orange-colored loam, on limestone.

Still a limestone vale! with rutty soft limestone roads.

Large *yellow* sheep: doubtlessly colored by the yellow soils, in folding: one fold observed.

The surface now breaks into bold swells: with an open view to the left.

More black barley; apparently rotting on the ground; and the weather still wet!

Meet strings of coal horses.

A beautiful billowy passage, on the right: distanced by Alfred's Tower;—a prominent object.

Continue along the ridge of a limestone hill; and command extensive views in Somersetshire; with a town on the right;—Bruton.

Descend towards Castle Cary; quitting the limestone lands, for deep rich soil, on a sandy base.

Still a mixed breed of cows.

Pass CASTLE CARY, and reach the inn, at Almesford.

47. SOUTH SOMERSET-SHIRE.

CASTLE CARY to SOMERTON.

(About Ten Miles.)

Leave "Ainsford Inn," and pass through the town, or large village, of Castle Cary.

Good grass land, below the town; and a very large orchard: a rich, fine passage of country.

An instance of young, red, Devon-like cattle.

More grass lands and hedge elms: a flat, rich, elm-tree passage.

Some wide, highish, grassland ridges; as in Glocestershire and North Wiltshire: the first observed in this journey.

Many cows: apparently, a cross between the Devonshire and Glocestershire breeds *.

Common fields, in wide, round ridges (as the grass lands). The crops—wheat, barley, and beans.

The corn harvested,—the beans still in shuck.

Now, grass lands near the road: pretty evidently produced from common arable fields, inclosed by piecemeal.

Several extensive orchards are seen in this neighbourhood; at present heavily laden with

* But see page 117, N.

47.

SOUTH SOMERSET-SHIRE.

fruit: a large white apple is conspicuously prevalent.

Red bulls, and many blood-red cows, are here observable. But some white or dotted spines are still apparent.

Beans are the most prevalent crop of this District: some now cutting!

Cross a swoln brook; the effect of incessant rain.

Many orchards. Some of them good; but mostly crowded—too closely planted.

See Glastonbury tower, at a considerable distance. How useful are towers, and other *legible* objects, to a traveller. They are intelligent and faithful guides, that explain to him the relative situation of the more prominent features of the country around him; and enable him to form an accurate idea of the connections and dependencies of its less conspicuous parts: beside being interesting, as conversable companions, that render his journey cheerful, and help him on his way. Somersetshire is singularly happy in having many of these intelligible guides.

Some light-colored black-and-white cattle.

An extent of strong deep clayey country. Much of it still in a state of common field, and

47. SOUTH SOMERSET-SHIRE.

and now as wet as mortar! The plow at rest, on *green* fallow grounds, in the height of wheat seed time! What folly to fallow lands of this nature, for wheat!

Neat limestone buildings, covered with pantiles.

More extensive orchards. The proportional quantity of orchard ground equal, I think, to that in the fruit Districts of Herefordshire and Glocestershire.

The road team, still, four horses, at length.

Pass over a very cold clayey swell: the clods of clay falling, or breaking down into granules, as lime.

Still pass between extensive common fields, which are, uniformly, fenced from the road: thus giving the country some appearance of being inclosed: the road (of blue clay stone) leading through well fenced lanes.

Cross the Roman road. Piles of coals, and a weighing machine.

Cold stubble lands, overrun with coltsfoot.

A fallow field dunged; and some of it, in a state of mortar, now landing up for wheat! None yet sown.

The plow team four loose-formed horses, at length.

47. SOUTH SOMERSET-SHIRE.

Another very cold swell of land; yet many large orchards seen? *

Tall, stone-slab fences. And pass between extensive quarries of blue claystone (a species of limestone or marble); lying in horizontal strata, with seams of earth between them; as in the Vale of Glocester, &c. The pits now nearly full of sheer *blue* water. Many men at work, dressing and polishing large slabs, for different purposes. Some of the lower strata are nearly black—very dark blue. The perfect horizontality of the strata is remarkable.

An extent of fine vale country, with much hedge timber, breaks on either hand.

Leave the cold claystone lands; and enter upon a warmer richer soil †.

Observe many neat pantile roofs, in this neighbourhood: the tiles in a good form; flatter, the curves easier, than those of the North of England.

Catch a wide rich view to the left (the Vale of Ilchester), and descend steeply towards Somerton.

Some

* The calcareosity of the base of those lands may serve to account for the prevalence of apple orchards.

† For former remarks on this part of the road, see page 97.

47. SOUTH SOMERSET-SHIRE.

Some barley still out. The tithe standing in cocks; with a herd of swine in the field!

An extensive flat,—doubtlessly a "moor,"—covered with water.

Some good bullocks, in rich but bare pastures! How is the stock of the country to be supported, through the ensuing winter!

Another extensive moor under water.

Ascend a steep rise to SOMERTON.

SOMERTON TO LANGPORT.

(About Five Miles.)

Some ox yokes leaning against a farm yard wall: the first observed in this journey.

Rise, by gentle ascent, a tame swell of cold limestone land; naked of hedge trees; and enter the common-field District, between Somerton and Langport*; leaving a rich wooded bason, round Somerton.

Numbers of sheep, and many cattle now on the corn stubbles of these fields. A few beans still out.

The hills of East Devonshire, and the Southwestern margin of Somersetshire, break into the view. And, now, an expanse of

* For former notices on this line of road, see page 94.

47.

SOUTH SOMERSET-SHIRE.

water arrests the eye! A thousand, or perhaps some thousands of acres appear, above and below Langport,—down toward Taunton and Bridgewater. The widest Sedgemoors seem to be entirely covered: thus realizing what my imagination had conceived; and showing what every spring tide, no doubt, heretofore exhibited. *

Leave the bleak, naked limestone downs; and descend toward LANGPORT.

Very many beans still out: and some meadow hay in cock, and in swath!

LANGPORT TO CHARD.

(About Fifteen Miles.)

Observe four oxen in yoke: the first.

Cross the Parret;—deep rich land on its banks.

Many apple trees in hedges: at present well laden with fruit.

Enter upon a rising ground of good grass land, with a calcareous base.

Leave

* Much corn land (probably in the recent inclosures of the Sedgemoors) it is said, is likewise under water; the farmers being now reaping their barleys in boats! cutting off the ears that swim on the surface, or stand above the water!

47. SOUTH SOMERSET-SHIRE.

Leave the Taunton road; and turn off towards Chard; at Curry Rivel.

More oxen in yoke.

Descend into a flat, rich, elm-tree passage: with large orchards; and some old grazing grounds.

Cattle uniformly red, on this side of the Parret. Sheep large, but of a loose frame.

Mile-stones universally illegible: shame on those who have the charge of them! *

Now mostly grass land; with some anthilly grazing grounds.

A broad water appears on the right. Rain! incessant rain! A large moor, on the left, entirely covered: a fine lake!

Pass large suites of pasture grounds; and skirt an open moor; mostly free from water; stocked with sheep; and with geese,—uniformly grey.

Re-enter inclosed lands: good red cows, and large loose sheep, in tolerable pastures.

Reach the foot, and wind round the end, of an inclosed ridge of deep loamy land. Many foul fallow grounds, in a most helpless state! Some old hay—the first *observed*, I believe, in this journey!

* How readily, and at how little expence, they might be made legible; by painting the figures of a color differing from that of the stones.

47. SOUTH SOMERSET-SHIRE.

Cross the Isle, and a marsh-like flat of rich sound land.

More good red cows; with lank sheep; nibbling the bare ground! and their poverty may, in some part, apologize for their appearance.

Arrish mows of wheat; securely capped with "reed."

Fatting bullocks, on pretty good lattermath: the first tolerably good aftergrass I have observed.

A rich passage with well timbered hedgerows.

More bullocks in good pastures.

Cross a brook; with rich flat lands on its banks.

Some clean Devonshire-like cows.

Beans in arrish mows: the first instance of the kind I remember to have seen.

Ascend a steep hill, with its face carved into lynchets:—artificial flat stages with grassy steeps between them; as on the chalk hills of Wiltshire, &c.

A rich back view is commanded; with the column of Burton Pynsent, in the distance.

Now, a more extended prospect; with the Poldown and Mendip hills, in the offscape.

47. SOUTH SOMERSET-SHIRE.

Bend over the ridge: an extensive view breaks forward.

Descend steeply to ILMINSTER; a neat market town; in a charming situation; a narrow, but rich and beautiful, valley; with large orchard grounds hanging on its banks.

Cross the valley, and rise a well soiled, well wooded swell of rich grass land.

Cows in good grass: several instances of milking them in the field. Mostly valuable red cows, in good condition.

Still grass land; with much hedge timber, and many pollards.

A thick, gloomy, rainy evening. The day closes in (at five!) before CHARD.

48.

MANAGEMENT OF TIMBER.

1799. OCTOBER. Timber trees, like other products of the soil, have their stages of growth, ripeness, and decay. There may be cases, in which it may be proper to harvest them, before they have reached the full state of ripeness. But it scarcely ever can be right to allow them (unless with a view to ornament) to remain on the ground, after they have reached that profitable state. Nevertheless, it is still not uncommon (notwith-

standing the long-alleged scarcity of timber for naval purposes) to see valuable groves and hedgerows of timber trees hastening down the stage of decay: thereby not only decreasing their own value, but preventing the growth of young trees; or keeping, in a state of waste, grounds that might be profitably applied. 48.

MANAGEMENT OF TIMBER.

On every part of this estate there is much fine timber that is now fully ripe, and too much which has long passed that valuable state. It has, therefore, been thought judicious, to prevent the further waste of a species of property that is highly estimable, not only in a private, but in a public, light; and to relieve the ground, as well as the undergrowth, from the encumbrance of such full grown trees, as have reached the state of perfection.

SELLING TIMBER.

With a view to this desirable end; and in order to conduct, as well as to *time*, the business of sale, with due propriety, the following enquiries have been made, of professional men and others, who are conversant in the disposal of timber, in this District.

The present prices, here, of timber of different species; as oak, ash, elm, &c. and the present price of oak bark?

43. The quantities of the different species that are now in the market, or will probably be offered for sale, during the ensuing seasons?

SELLING TIMBER.

The particular species that are at present the highest in request, and are likely to meet with the most advantageous sale?

The description of buyers of the different species, in this country; and the sizes of lots that are best suited to them; so as to raise an emulation among them, and thereby ensure a fair market price, at a sale by public auction?

Satisfactory answers to these preliminary enquiries being had; and it being thereby found, that the demand for timber in general is, at this time, above par, and that the price of oak bark is far above former precedents, no doubt was left as to the propriety of offering some considerable quantity to sale, at the usual seasons for selling timber in this department: namely, autumn, for ash, elm, &c.; and spring, previously to the barking season, for oak.

Instructions of the following purport were, in consequence, submitted to a capable and intelligent surveyor and auctioneer of timber and estates: in order to guard against the havock and disfiguration of the face of a country, which is too frequently occasioned,

48. SELLING TIMBER.

by an indiscriminate "fall of timber;" in which every thing, that will bear a price, is hurried into the "Particulars of Sale."

In making your selection for sale, of the timber of the manor of ———*, you will have the goodness to mark such trees, only, as appear to have reached, or nearly reached, their most valuable state of growth; or such clean prime trees as have received irreparable injury, from the wind, or improper treatment; or such as are injuring younger trees, whose joint encrease will overbalance that of the more saleable timber:—

Leaving, about farmsteads, and in conspicuous situations, sightly groups and single trees; altho they may be fully or nearly full grown; provided they are not likely to go soon to decay: also a sufficiency of coarse trees,—such as might injure the sale of the more valuable timber,—for the ordinary current repairs of the estate; with some of a better quality, for gates and other particular purposes: also all trees in full growth (excepting those above prescribed). In this, and every part of your important charge, looking

* Overloaded with hedgerow trees; and containing much grove timber.

48. SELLING TIMBER.

looking forward to another fall of timber, in the manor of ———, some fifteen or twenty years hence.

1804. Those instructions being readily followed up, with superior judgment, the appearance of the estate on which they were applied, notwithstanding the quantity of valuable timber with which it supplied the markets, has been improved, rather than disfigured, by the alteration. It is still a well wooded valley:—that of YARCOMB, on the Eastern border of Devonshire *.

CONDITIONS OF SALE. The following conditions, under which the matured timber on different parts of this estate has been sold, I insert at length; they being the fullest, and in many things the most judicious, and safest for the seller, of any that have fallen under my particular notice. For other conditions of sales of timber, see MIDLAND COUNTIES, MINUTES 136, 138, and 139.

"1st.—The highest bidder on each respective lot to be the purchaser; and if any dispute arise between two or more bidders, the lot so in dispute to be put up again, or the

* The surveyor and auctioneer, Mr. Bond of Axminster.

biddings to go on from the last preceding that in dispute, at the discretion of the auctioneer. 48. SELLING TIMBER.

"2dly.—The biddings to be one pound advance under one hundred pounds, two pounds from one to two hundred pounds, three pounds from two to three hundred pounds, and so on, one pound advance upon every hundred pounds onwards. The auctioneer to be at liberty to bid once on each lot, for the benefit of the vender, or to sell to one bidder, if he chooses.

"3dly.—Each purchaser to pay down, immediately, a deposit of ten pounds per centum, in part of the purchase-money, and to sign an agreement for payment of the remainder of his purchase-money, as follows, viz.—twenty pounds per centum more, on or before the 24th day of June 1800*;—forty pounds per centum more, on or before the 29th day of September following;—and thirty pounds per centum more, on or before the 24th day of June 1801. All which said payments shall be made in Bank of England notes or cash, or in bills of a respectable banking-house, drawn on a banking-house in London, payable on the respective days aforesaid. "4thly.

* The day of *this* sale being the 4th of April 1800.

48. SELLING TIMBER.

"4thly.—No trees whatever to be rooted or grubbed that stand on the coppices, hedges, or hedge rows; such trees only as stand on the open land may be rooted, the holes being properly filled up by the purchaser or purchasers, to the satisfaction of the vender, the tenant or tenants of the land; with liberty to sink or erect saw-pits at such convenient places as the occupier or occupiers of the respective lands shall approve of.

"5thly.—No timber to be removed from, or through, any of the corn fields, from the time the same are sown, till after the harvest; nor from or through the meadows, from the 25th of March, till after they be mown; but the purchasers to have free liberty, at other times of the year, till the 29th day of September 1802, to fell, cut down, cart, and carry away the said trees, with the lop, top, and bark thereof, along the usual roads, but no longer.

"All timber, lop, top, bark, or other articles, remaining on any part of the said premises, after the aforesaid 29th day of September 1802, to become the property of the vender.

"6th.—Each purchaser to be answerable for injury arising from carelessness or wilful-

48.

SELLING TIMBER.

ness which shall be done to the trees, tellers, or saplins on the estate, not appointed for sale; or to the fences, underwood, corn, or mowing grass growing thereon; also by their horses or other cattle being permitted to browse in the closes or woods; or in case any hedges or fences are pulled down for gateways, to come nearer to the principal roads; or any other wilful injury done more than is here expressed, the amount of the damage, in case the same cannot be otherwise settled, shall, within one month after the same is committed or done, be referred to two indifferent persons, one to be chosen by each party; and if they do not agree, by a third, to be chosen by those two; and such satisfaction as they or their umpire agree on, shall be final.

"7thly.—If any purchaser shall remove a greater portion, or more in value of the said timber from the premises than in proportion to the instalments then made, such timber, bark, or any part thereof, shall at any time, or in any place, wherever the same shall be found, be lawfully seized by the vender, his agent or agents for the time being, and sold to make good such deficiency of payment, and all expences attending such seizure and resale. 8thly.

48. ELLING IMBER.

"8thly.—Each purchaser, within fourteen days from the sale, to give a bond, in which he shall be joined by some person, to be approved by the vender, for payment of the purchase-money in the manner before mentioned, and for performance of the several conditions before contained, and not to remove any of the timber until the same be executed; and in default of giving such security within such time, the lot to be resold, and the deficiency, if any, together with expences occasioned thereby, to be made good by the defaulter. The respective purchasers to pay for the stamps required for such bonds, and attend at some convenient place, to be fixed by the auctioneer, to execute the same when required by him so to do, before the removal of any of the timber."

49.

XETER TO KEHAMP-TON.

1799. NOVEMBER 10. GENERAL REMARKS, in travelling between EXETER and OKEHAMPTON (twenty-two miles): a portion of the great road between London and the Landsend.

Elevation. The road traces a chain of heights of great elevation, comparatively with the Vale of Exeter; but much beneath the Dartmore mountain.

49.

EXETER TO OKEHAMPTON.

The surface is truly Devonian: large rotund knolls,—huge semi-globes, checkered as maps with lines of hedgewood, and separated by deep narrow cooms, or irregularly winding vallies *.

The climature is very backward. Some barley is still seen in the swath! And some, at a distance, apparently uncut! The elevation, and the internal coolness of these hills (situated on the Northern skirts of the mountains) serve to explain this extraordinary fact. The central parts of Scotland are probably forwarder, this year (see the next Minute), than is the center of Devonshire.

Waters. Numerous rills, and minor brooks, are seen trickling down the sides of the hills, or worming their way among them.

The soils are chiefly, or wholly, of a schistous or slatey quality:—the prevailing characteristic of the soils of Devonshire.

The substrata, as seen from the road, are likewise of a slatey nature; but a retentive subsoil is evidently detected, by the rushes and other marks of coolness, that are seen on the surface. The

* Bowls, or other rotund bodies, cut in halves, and placed side by side on a table, would give a tolerably good idea of this part of the county.

49. EXETER TO OKEHAMPTON.

The road tolerably good; considering the season!

State of inclosure. The whole inclosed; and mostly in large fields; like other upland Districts of Devonshire.

Products:—chiefly arable crops, on the flatter lands; grass, in the wider vallies; with timber, in the narrow bottoms; coppice wood, on the hangs, and furze on the brows of the steeper cooms.

The appearance—that of many other passages of the county:—beautifully undulating surfaces, for several miles on every side: with Dartmore on one hand, and inferior mountain heights, on the other.

Buildings:—mostly earthen walls; some of them roughcast: the covering—slate, or "reed."

The fences—high, coppiced mounds.

Beasts of draft. None at work (Sunday); nor any—either working oxen or cart horses—observed. Saw nothing that bore any appearance of animals of labor; except small mean pack horses; which, probably, are still in full possession of these hills.

Wheat,—much in arrish mows; and much already sown, for the next year's crop: these exposed heights being far before the Vale of

Exeter, in this respect: almost as the Cotswold hills are before the Vale of Glocester. 49. EXETER TO OKEHAMPTON.

Cattle. How few are seen from the road. Those observed are of the Devonshire breed: but not pure, or good.

The sheep—chiefly polled: but few seen!

Orchards are numerous; tho of less extent, here, than they are in the more genial parts of the county.

In the state of husbandry, nothing prominent or striking appeared; excepting the universal yellowness of the turnep crop.

The probable mean of improvement which struck in this cursory view, is more effective tillage,—thereby gaining more productive ley grounds,—and thus preparing for an encrease of livestock; in a country where extraneous manures must be difficult to collect.

50.

1799. NOVEMBER 11. This has, hitherto, been the most untoward year, for the purposes of husbandry, which perhaps this country has ever experienced *. THE SEASONS OF 1799.

The

* And the effects lamentable, beyond any thing experienced in modern times. Therefore, having had extraordinary

50. THE EASONS OF 1799.

The winter, and more particularly the spring, were severe in the extreme. In mountainous Districts, whether of England or of Wales, great numbers of sheep perished, and more than half the lambs which were dropped died, through severity and want! In some places, I was assured, scarcely a lamb was saved!

In Yorkshire, on the fifth of *April*, there was one of the severest storms of wind, frost, and snow, ever known in that northerly part of the kingdom; and the spring continuing cold, every mouthful of winter fodder might be said to be expended, before a blade of grass had sprung up to support cattle in the field! Hay was sold at eight or ten pounds a ton (in that remote part); and a sufficiency was not to be had, at any price. Cattle in general were reduced to skeletons; and many of them had not, in the month of September, quite recovered from their state of poverty and weakness.

In the neighbourhood of London, only, hay was plentiful: owing, probably, to many of the horses, usually kept in Town, having

ordinary opportunities of remarking the progress and effects of its seasons, in the Island at large, I think it right to insert them, here; my observations closing in West Devonshire.

been drawn into the country by war's alarm; and fed in camps and quarters *.

50.

THE SEASONS OF 1799.

When I left London, in *June* (by the way of Bath, for Wales, and Scotland), corn crops in England, were nearly a full month behind their usual state of growth, at that season. In South Wales, they were much in the same state of backwardness. But, what is remarkable, the vallies of the more mountainous Districts were equally or more forward, than the lower vale lands. And the same remark was made in passing through North Wales; as well as among the mountains of Westmorland and Cumberland: the vallies at the foot of Skiddaw, between Keswick and Ireby, were, *this year*, as forward, if not forwarder, than the fine vale lands round Wigtown, on the Southern banks of Solway Firth.

The singular wetness of the season may serve to explain this effect:—the more elevated lands were sooner freed from the extraordinary surcharge; which by keeping the lower lands in a chilly state, during the early spring

* In returning to London, from the north, in September, the first old hay, observed, was in Hertfordshire: near London, much was seen.

50. THE SEASONS OF 1799.

spring months, prevented them from using their wonted exertion, at that season.

In the more southern provinces of Scotland—Dumfriesshire and Ayrshire—the season, in *July*, was nearly as forward as in England; tho behind its usual time. And the same was observable (some allowance being made for *climate*) through the Western Highlands; by Inverary and the line of military road, and the forts, to Inverness.

In the Lowlands of Inverness and Nairn shires, the effects of a cold wet spring were evidently felt. In a common year, oat harvest usually commences the first week in September: this year, it was not expected to begin much before the end of that month. On the 19th of *August*, barlies in general were still green——some entering the red streaky state. But oats had barely protruded their pannicles, and were still green. Nevertheless, round FORRES, only a few miles distant, but enjoying richer and warmer lands, fine crops of well ripened wheat were cutting, the 22d *August*; some plots of barley (or beer) were likewise cut; and the flax harvest at its height: while in the District of Buchan, situated on the same parallel of latitude, there was no prospect of corn harvest, for several weeks to come!

50.

THE SEASONS OF 1799.

In passing thro' Fifeshire, by St. Andrews and the coast, to St. Monance *, the 25th *August*, I found the corn crops nearly in the same state as that in which I left them, in Nairnshire and Aberdeenshire: even the wheats were still mostly green; some beginning to change: the flax harvest barely commencing. In travelling through part of East Lothian, from Dunbar toward Dunse, a similar state of crops was observable;—corns in general were still green, and peas barely in blossom:—some particular fields of wheat and barley beginning to change. And even in the rich District of Dunse, which lies well to the sun, oats were still green as grass; without any signs of harvest:—wheat and barley being yet green! upland meadow hay, in cocks; and some making †. Near Berwick, meadow hay making appeared to be at its height, *this year*, on the 27th of *August*. Through Berwickshire, in that line of road, I observed only one instance (a piece of barley) of corn having, then, lost its green color.

The

* From whence I passed across the mouth of the estuary of the Forth, by the Bass Island, to Dunbar.

† The first MEADOW HAY observed, in this journey.

50. THE SEASONS OF 1799.

The same was remarked, between Berwick and Belford:—wheat and barley were still green. In the rich and warm bason of Belford, one particular piece of wheat had changed, and appeared to be nearly ripe. In the low, flat, and fertile District of Bamburgh (on the sea coast between Belford and Alnwick), the state of crops was similar to that observed between Dunbar and Belford: some weeks, *this year*, behind the District of Forres, in the North of Scotland!

Between Alnwick and Warkworth, on the rich lands towards Alnmouth—busy carrying hay—some barley fast changing—and oats nearly ripe;—yet wheat was still green: and through the fertile vale District of Warkworth, to the valley of Morpeth, corns in general were yet green; the state of crops being nearly the same, there, as in Berwickshire. And from thence to North Allerton (except in the neighbourhood of Darlington) nearly the same state was observable:—some meadow hay in swath;—some in cocks; and much carried.—Corn, in general, still green:—some particular fields, however, showing symptoms of approaching harvest. But there was no appearance, on the 30th *August*, of any thing being ready to be cut, in less than

50.

THE SEASONS OF 1799.

a fortnight from that time:—the weather then cold, and incessantly rainy! Toward Thirsk, on warmer land, the crops were somewhat forwarder. In a general view, the vale of York may, this year, be reckoned a week or more, before Northumberland and the South of Scotland.

In the vale of Pickering, a similar state of backwardness prevailed.

In my way to town, the 16th and 17th of *September*, the state of harvest was as follows:

Pickering to Malton. Reaping wheat of a dusky green color:—the straw almost rotten; the grain puny and soft! Not a well ripened yellow crop to be seen in the vale; nor scarcely one that was standing: some of the flatter crops were grown through with weeds; others with green shoots from the roots of the corn!

Round Malton (on drier, warmer, and more *healthy* lands) many bright yellow crops,—fully and evenly ripened: some, but not much, cut: mostly, however, in a state of forwardness, or almost ready for the sickle: nearly in the same state, then, as the crops in the District of Forres were almost a month

50. THE EASONS OF 1799.

ago!—full three weeks behind that favored spot!!

York to Tadcaster. About half the wheat crop was cut. Barleys not yet ripe; nor any thing well matured.

In the neighbourhood of Doncaster (healthy limestone land),—corn, of every kind, well colored; and much barley in swath.

Near Newark. Corn in general cut; and about half of it carried:—one stack thatched. But beans were every where still green; or wore a dusky blighted appearance.

Through Bedfordshire, &c. &c. Wheat mostly carried. Barley partially carried: some still uncut.

South of the Thames (from enquiry) harvest was, then, nearly finished.

Nevertheless, in crossing the higher downs of Hampshire, the 20th of *October*, in my way, here, I observed one piece of barley in swath: the only piece, however, which I saw between London and Salisbury.

Between Salisbury and Hindon, my journal has the following remarks. Leave the valley and reach the summit of the heights. Much barley in swath; some in cocks; and some yet standing! And further towards

Hindon—-above Fonthill—-more weather-beaten barley; and some oats uncut,—still greenish! 50.

THE SEASONS OF 1799.

Hindon to Stourhead Inn. Much standing barley; not more than half the crop, it is said, is yet cut, on these extensive bleak heights. And, again,—several hundred acres of barley are now under the eye,—in cocks, in swaths, or yet standing! Even at the feet of the hills, and in the face of the sun, about Mere (on the cool clayey lands that usually accompany the feet of chalk hills) half the barley crop is still out,—some yet uncut. And, farther,—away from the immediate feet of the hills,—a large piece of barley is still standing,—in this vale District! —with some oats yet green; but, apparently, with suckers from the roots. How alarming the prospect!

THE state of harvest, in the Southern parts of SOMERSETSHIRE, appears in the foregoing detail (in MINUTE 47), being, there, considerably forwarder, than on the hills of Wiltshire.

But, on the EASTERN BORDERS of DEVONSHIRE, barley harvest was later, even than on the Western heights of Wiltshire! On

50. THE SEASONS OF 1799.

the 25th of *October*, the principal occupiers, in the valley of Yarcomb, had not, then, saved an acre of barley!! Not, however, altogether, from the lateness of the season of ripening,—the whole being then cut;—but, in part, from the clover and *other herbage*, which rose, this wet year, with the barley crop *.

In the VALE of EXETER, a more genial situation, harvest was, at that time, nearly, or entirely, finished.

For its state between EXETER and OKEHAMPTON, see the preceding MINUTE, 49.

In this District, WEST DEVONSHIRE, the harvest is now closed.

1804. The foregoing detail of the progress of harvest, in 1799, is not merely a matter of interest, in itself; but may serve to foreshow the mournful effects of a moist and cool summer, in this Island:—otherwise, I

* An ingenious and valuable expedient (under the existing circumstances) was here embraced, by several farmers. The clover and weeds were shook out of the swaths, by hand, and given in their green state, to starving cattle: an expedient which might have been practised in many other places, with great profit: a like mischief being that year general.

might not have deemed it an object of publication. The ensuing scarcity, of 1800, was such as must, inevitably, have produced a deadly famine; had it not been averted by a serious defalcation of the capital of the country. And, surely, every mean ought to be devised, and carried into effect, which may tend to provide against a repetition of a disaster, so discreditable to its political economy, and subversive of its permanent prosperity. 50. THE SEASONS OF 1799.

51.

1799. DECEMBER 24. The following sketches of the SEA COAST of DEVONSHIRE, will serve to convey some general ideas of the Southern margin of the county; which, before these cursory views, I had not traced. SEA COAST OF DEVON.

THE FIRST LINE,--between Plymouth Sound, and the estuary of the Exe,—was travelled on the sixth instant.

In crossing the SOUTH HAMS, scarcely a new idea, or one particularly interesting, arrested my attention; excepting, that, between Modbury and Dartmouth, a more rugged barren height meets the eye, in this line

51. SEA COAST OF DEVON.

of road, than I had before observed; and excepting that a greater number of farmsteads are now visible from the high road (the hedges being leafless) than were observable in my former excursion. See Vol. I. p. 269.

The Environs of Dartmouth. Extraordinary passage! Lofty banks rise on either side of the estuary of the Dart,—steep and high, almost, as Highland braes—or first stages of hill in the face of a Grampian mountain;—the town of Dartmouth being stuck, alley above alley, against one of the steepest of these steeps! Its situation is aukward in the extreme. It was not planned for carriages. It is barely safe for pack horses to enter. The approach is steep as the roof of a house. Carriage horses slide into the place, on their haunches, down a slippery pavement.

The estuary, opposite the town, is half a mile or more in width; but narrows towards the mouth; which, combined with the castle and other picturable objects, as seen from the terrace walk, below Kingsweir, affords a most interesting view. Indeed, the environs, in almost every point of view, are picturable.

Dartmouth, by Brixham, through the District of Torbay, to Newton Bushel,

and thence to HALL DOWN, on the banks of the valley of the Exe. 51.

SEA COAST OF DEVON.

Elevation and surface. Between Dartmouth and Brixham, the face of the country is raised into high, rotund hills, similar to those of the South Hams; but in a more *tempestuous* style, I think, than those of the most billowy passage of South or West Devonshire. Between Brixham and Newton, along the coast of Torbay, lies a flatter, less Devon-like passage:—a fine plot of vale lands. Northward of Newton Bushel, the surface is abruptly broken, in the mountain-skirt manner.

The climature is evidently mild; especially near the sea; where snow, it is said, seldom lies. Grass may be said to grow throughout winter: many unirrigated grass lands are at present as green as gross wheat in the spring. Near Brixham is a field of lattermath, that is now bearing not less than a load of herbage, an acre; and which is still kept for the purpose of fattening bullocks!—on grass in the field—in the depth of winter!

Waters:—the Teign, with numerous rivulets; and the broad sea of Torbay, at hand.

The soils of this line of country, the more northerly part of it excepted, are of a superior

51. SEA COAST OF DEVON.

rior quality; and along the coast, many of them are of an extraordinary color: red, as the redest oker!

The substrata, observed, were either slate rocks, or deep red loams:—a slate quarry, in work;—of a bright blue color.

Products:—chiefly those of mixed husbandry. Very little wood appears; except on the hedge mounds. Some orchards are seen in the vallies.

General appearance:—various as the style of the surface travelled over, and the waters which mix in the views. There are few lines of road, of equal extent, that are more interesting to a traveller.

The second line,—between the estuary of the Exe, and Lyme—the Eastern boundary of the country—I travelled on the twenty-first instant.

Elevation and surface. Mostly uplands, irregularly surfaced, and divided by rivered vallies. Nothing of the vale character is observable, in this line of country; except on the banks of the Otter, about Otterton and Bicton; and again round Coliton, on the banks of the Axe. But these vale passages are mere dilations of the vallies; and

51.

SEA COAST OF DEVON.

not of great extent. The estuary and valley of the Exe are overlooked by a lofty line of hill; rising boldly from the West; but shelving gently, eastward, into the valley of the Otter; on the East side of which the tall, steep-sided, flat-topt hills,—that characterize the more Eastern parts of Devonshire, and occupy no inconsiderable portion of the country,—commence.

The soils of this quarter of the county are various. The Woodbury hills, which form the Eastern bank of the valley of the Exe, are mostly covered with black, heathy mold; partaking much of the mountain character. In the valley of the Otter, sandy loam, of a good quality, is prevalent. Eastward of this, the hills and the vallies are similar to those already described, in DISTRICT the SIXTH.

The substrata are less obvious. They are chiefly, it is probable, of an earthy nature. No slate rock, or rubble, is observable in this quarter of the county. Eastward of the Syd, are found, in detached masses, the different species of calcareous fossils, that are described in the last-mentioned District *.

The

* And beside those which are there noticed, another of a more unusual nature is found on the sea coast; particularly

51. SEA COAST OF DEVON.

The roads, eastward of the Otter (their steepness apart), are in general excellent: being formed with that remarkable species of base flints, which abound on the barren heights of East Devonshire.

In a general view, this line of country affords great variety of scenery, and much picturable effect:—not owing more to the varied surface of the ground, and the winding rivered vallies of the Otter, the Syd, and the Axe, frequently hung with wood, than from interesting views of the sea, with the smart towns on its coast,—Exmouth, Sydmouth, Seaton, &c.—which incidentally meet

ticularly about Beer, on the West side of the mouth of the Axe; and is known by the name of BEER STONE.

This has been a freestone of great celebrity, during time immemorial; being found in all the churches and ancient buildings in this quarter of the county. The quarry, or rather mine, out of which it is drawn is subterranean; proceeding to a considerable distance, and spreading wide, beneath the body of a hill: pillars being left to support the roof, or superincumbent pressure.

It is white almost as chalk or pipe clay; but it is of a grit-like texture; which resembles that of the Portland, or rather the Purbeck, stone; being free to work, but does not stand the weather well, in exposed situations. It is almost wholly calcareous. One hundred grains, dissolved in the marine acid, left in the filter only five grains of residuum;—a brown, friable, earthy matter.

the eye, in favorable points of view, and at desirable distances. If, in an open carriage, at Christmas, and directly in the teeth of one of the severest winds that ever blew over the face of this country, its charms were attractive, they surely cannot fail to fascinate, in a less rigorous season!

51. SEA COAST OF DEVON.

52.

1800. APRIL 11. On my arrival at this place (Buckland) the latter end of March, I found the farm overburdened with cattle, and their winter fodder nearly exhausted! Not more than a load or two of inferior barley straw left, for near sixty head of straw yard cattle; and the grass barely beginning to move: none for cattle to lay hold of, *in the field:* while in the *young coppice woods* that lie warm, I perceived a sufficient bite of herbage,—between the sapling stubs.

PASTURING YOUNG COPPICES.

The whole of the cattle on the premises (the working oxen and cows in milk excepted) were put into a large wood of four, five, or six years growth, from the last cutting; and foddered with a little inferior hay, once a day.

Finding

52. PASTURING YOUNG COPPICES.

Finding that they were doing well, without injury to the coppice, and perceiving that another wood of younger growth (namely, one, two, or three years), was a better pasture, I ordered the yearling and two-year-old stock to be kept in it, in the daytime, and to be taken out, in the evening; that they might do as little injury as possible to the tender shoots of the first year's growth. They grazed, filled, and licked themselves, as if they had been enjoying the richest grazing ground! and this without the smallest injury to the young wood. I repeatedly stood among them, and saw them pasture with avidity, on the *herbage*, without offering to touch a twig of the *wood*. I was the more diligently attentive to the operation of this expedient, as the alarms of prejudice had pronounced it to be extremely dangerous: not only to the wood, but to the cattle, also.

The buds of the birch, mountain sorb, and other soft woods are now beginning to swell; but even these remain untouched.

How estimable is the SPRING PASTURAGE of YOUNG COPPICES, *this year*; when cattle everywhere are in a starving state! (see MIN. 50.) And, under more ordinary circumstances, it may be eligible to embrace the tran-

sient interim, *between the springing of the herbage and the opening of the tree buds*, to depasture store cattle, in *fully stubbed coppice* grounds. How valuable is a few weeks', or even a few days', support, at that season (when cattle are pining in the straw yard): thereby giving the fields time to freshen! Care being of course taken to remove them in due time. 52. PASTURING YOUNG COPPICES.

April 16. Observed, for the first time, the yearlings beginning to browze on the foliating shoots of the birch. But this is serviceable, not injurious, to the rising coppice. The birch is a pernicious weed, in the coppice grounds of this country. The oak saplings still remain untouched.

May 4. The young oak shoots being now beginning to foliate, and the pasture grounds having acquired a sufficient bite for cattle, they were this day taken out of the woods, in good condition; and the young coppices securely shut up for the summer:—without the least appearance of their having been injured, by affording a month's salutary support of a large stock of cattle, at this critical juncture.

1804. Not the smallest trace of injury has resulted, from this profitable expedient.

53.

53.

53.

SPRING FOOD OF SHEEP.

1800. APRIL 11. Another inducement for prosecuting with solicitude the expedient, afore detailed, was the circumstance of a large ewe flock being left destitute (through necessity or neglect) of preserved pasturage, to support the suckling ewes in early spring. For altho the turnep crop of the farm was sufficient to keep the *lambs* in tolerable condition, the *ewes* were worn down to skeletons. See Vol. I. page 257.

A judicious manager of this neighbourhood * has had better success with his ewe flock, this season, than any of his neighbours, —through a principle of management, which brings this important part of the sheep husbandry to a degree of perfection. He kept his ewes wholly on turneps, until they yeaned; and, as they dropped their lambs, put them upon kept grass. The turneps filled the ewe with milk for the support of the infant lamb, and the grass, afterward, maintained them both, in good condition.

And another advantage results from this accurate practice. The turnep grounds being

* Mr. JOHN WILCOCK, of Monks' Buckland.

thereby early cleared, there is sufficient time to prepare them, properly, for the spring crop, and to sow this and the grass seeds in due season. 53. SPRING FOOD OF SHEEP.

54.

1800. MAY 20. An accurate method of putting in Cabbage Plants is here practised. PLANTING CABBAGES.

Instead of a dibble, a MATTOCK is used, in making the holes. The broad end, or hack part, of the tool is struck down into the soil, eight or nine inches deep, more or less, according to the size of the plants;—and the handle being pressed downward so as to form a vacancy or opening behind the blade, the roots of the plant are inserted in it, and the tool carefully withdrawn, without ruffling the fibres of the root. The plant is then raised into a more upright posture, with the mouth of the mattock inserted behind it; drawing some mold pretty hard against the head of the plant, as a sort of bolster for it to lean against: finally, the soil, in front of the plant, is pressed with the foot; in order to bed the fibres closely in the mold.

The plants are carried by a boy; who puts a single plant into the man's hand, at the in-

54. PLANTING CABBAGES.

stant he is ready to insert it; the man keeping his eye constantly upon his work.

In the instance now under practice, the plants are put in at the distance of three feet, each way, by a feathered line; being nearly five thousand plants, an acre. One man plants, in this manner, about a quarter of an acre, a day; thus inserting twelve hundred plants, without extraordinary exertion.

The advantages of this method, over that of planting with a dibble, are obvious: the fibres of the plants lie much straighter and easier in the ground, under this method of planting, than they do in the narrow-pointed holes of a round dibble; whose sides are necessarily compressed and rendered smooth; consequently unfit for the tender fibrils of the plants to penetrate: whereas, in the practice under notice, the fibres are spread; and are bedded in loose broken ground, gently pressed to the root. No hollowness is left; nor any receptacle formed for water to chill the plants, should a wet season succeed the planting. And, in the event of a dry season succeeding, and especially when the season of planting is dry, the method here practised has its advantage; as the plants are easily let down to a sufficient depth; even in a strong

soil; which is always to be preferred for Cabbages. 54.

PLANTING CABBAGES.

Were I to suggest an improvement of this method, it would be to form a dimple, or dish, on the upper side of each plant, with a pavior's rammer; by this ready operation, not only establishing the plant more firmly, but forming a receptacle for the waters of hasty showers: thus conveying to the plants, from time to time, an extra supply of moisture.

55.

NORTH DEVONSHIRE.

1800. AUGUST 30. TRAVELLING NOTES in NORTH DEVONSHIRE, from ILFRACOMB, by BARNSTAPLE, to TORRINGTON.

Landed, this morning, at ILFRACOMB, from TENBY, in Wales. The cliffs of Ilfracomb are of great height; and, to the East of the town, at the entrance of the harbor, they are nearly perpendicular:—exhibiting a broad face of slate rock, some hundred feet in depth; with large blocks, and irregular masses, of veined black marble (resembling that of Chudleigh) buried in the slate rock! One of those masses, situated at the base of

55. NORTH DEVONSHIRE.

the cliff, is at present worked as a limestone quarry *.

The little harbor of Ilfracomb, how secure! What pity it is not more capacious. The town, or rather large genteel village, is, as a sea port, singularly neat and pleasing; and the women of Devonshire, how elegant and well featured. The grounds to the West of the town,—a narrow stage of rich and sweetly surfaced land that intervenes between the foot of the steep and the sea,—well accord with the other accompaniments of this lovely little secluded slip of country.

ILFRACOMB to BARNSTAPLE.

(Ten Miles.)

Ascend the high steep hill! whose substructure is evidently slate rock (being, doubtlessly, a continuation of the sea-worn cliff), which is here covered with soil of a good quality, and with a subsoil of slate rubble:—true Devonshire land. In the bare sea-worn

* Geological Remark. These fragments of marble, being closely bedded in the slate rock, show plainly that the latter was in a fluid, or a plastic, state, at the time of their union. From this and other appearances of schistous productions, in different parts of the Island, they appear to have originated from alluvious matter, deposited in a state of mud.

cliff of Ilfracomb, we probably see an interesting specimen of the internal structure of the slate hills of Devonshire and Cornwall. 55. NORTH DEVONSHIRE.

Reach the higher stages of the heights. A large flock of sheep; apparently of an improved mountain breed:—with tall white pigs depasturing among them!

Extensive sea views, to the West and North. Lundy Island, and the Welsh coast.

Cross over high and recently inclosed lands; stocked with fine young cattle,—of the *true* Devonshire breed:—*all red*:—a striking contrast to the *true* Pembrokeshire breed (still as it were in the eye)—*all black!* Yet, in form, and agility in work, how great the resemblance.

More recent inclosures;—but of higher and meaner lands. Turn the summit of the height; and exchange the sea view, for that of an ocean of black hills;—the heathy summits of barren heights; with which North Devonshire abounds: its rich, cultivated lands being, in this point, hid from the view.

Barnstaple Bay, and the estuary of the Taw, now break, on the right.

Cross a succession of weakly soiled heights. Yet beautiful young cattle are seen, even in the lanes, on these high lands!

55. NORTH DEVONSHIRE.

The lower, richer parts of North Devonshire are beginning to be disclosed;—distanced by the Dartmore mountain.

Cross a heathy common, stocked with horned sheep, of varied countenance:—similar to the breeds of Dartmore, and other high barren lands of the West of England.

The junction of the Taw and the Torridge, with their fertile banks, are now seen, as in a bird's view. No appearance of parched grass grounds, yellow as corn fields at harvest, is observable, on this side of the channel, as on the coast of Wales. Here, grass lands, in general, notwithstanding the extreme droughtiness of this summer, retain a greenness of color.

Descend into the rich and well featured environs of Barnstaple; through the fine suburb of Pilton:—a charming situation.

BARNSTAPLE to TORRINGTON*.

(Eleven Miles.)

August 31. Cross the Taw, by a long, narrow, incommodious bridge. A flat of marshes on the left,—fully stocked with

* By the direct road. For notes, between Torrington and Barnstaple, by Biddeford, see Vol. I. page 355.

55.

NORTH DEVONSHIRE.

North Devon cattle of the best blood. Also some good, thick, poled sheep.

Climb a steep-sided swell—a solid mass of slate stone;—and gain a rich back view, across the valley of the Taw. The fences, here, are invariably coppiced mounds; with a few hedgerow elms, at their feet.

Cross a wooded dip. The bottom cool pale-colored land.

Climb another hill; and get another interesting back view. Grass grounds still uniformly green. Descend, and cross another valley—of better land;—to have another tedious *creep* up a long *blind lane!* how teasing to an *observer*.

Top the height—of pale, weak land; and have a Westward view, to near Hartland Point.

Pass through a furze-bush waste; and see extensive furze grounds.

A wide-spread bason opens; filled with cultivated fields and wood. Still some good North Devon cows. The ley grounds, here, somewhat scorched,—and harvest mostly in.

Ascend inclosed arable heights,—by intolerably steep roads; and enter a wide extent of under-productive country: apparently owing,

55. NORTH DEVONSHIRE.

ing, in some considerable part at least, to a want of tillage.

See Stephen's Town,—a seat of Lord Rolle, on the left; and descend towards Torrington; crowning a goodly swell,—distanced by well wooded scenery.

Cross a fern-grown common; with some pied cattle upon it: the first observed. Pass a small COMMON FIELD—"Lammas Land"—in the immediate environs of the town:—the only one *observed*, in this more Western part of the kingdom.

GENERAL REMARKS, IN NORTH DEVONSHIRE.

The *climature* of this quarter of the county varies with the elevation. Harvest may, at present, be said to have passed its height. Some corn is yet standing, on the hills; and much, every where, is still in the fields; except in low warm situations. It is, this year, much in the same state of forwardness, as in Cheshire, Shropshire, Herefordshire, and on the lower lands of South Wales. The present verdure of the grass lands, here, is owing, I understand, to some timely rains that have recently fallen: while, on the opposite side of the channel, the summer has been continually dry.

55.

NORTH DEVONSHIRE.

The method of *harvesting* corn, in the line of country now travelled over, is different, this year at least, from that of West and South Devonshire; as well as from that of the Southern coast of Wales: where arrish mows are universally prevalent: whereas, not one has met the eye, between Ilfracomb and Torrington. Near the former, I observed wheat set up in fours, with a fifth sheaf inverted, as a hood: and oats in threes, uncovered. Toward the latter, large stacks of corn are seen standing in the areas of fields; each containing, apparently, the produce of the field it stands in. How various are the established practices of harvest!

The North Devonshire *breed of cattle* do not appear to be in full possession of the country, farther westward, than the Western banks of the Taw. Nevertheless, on the higher grounds that separate the valley of the Taw from that of the Torridge, and even on the Western banks of the Torridge, between Torrington and Hatherley, not only cows, but young cattle, of a superior quality, are more or less observable: an evidence, that this valuable breed of cattle are spreading westward; and they doubtlessly ought to possess the entire country:—provided their sizes,

55. NORTH DEVONSHIRE.

sizes, in different situation, were suitably adapted to the soils and climatures of the lands, by which they are to be supported.

56.

THE SEASONS OF 1800.

1800. October 29. This year, as the last (see Min. 50), has been strongly characterized. The spring months were extremely wet: the summer still more remarkably dry: there being scarcely any rain, in the Island at large, between seed time and harvest!

The effects of these extraordinary seasons have been various; according to the different natures of the lands on which they have operated.

The drought setting in suddenly after the rains, deep clayey soils were cemented; and the crops, especially of wheat, were thereby much injured: while those on thin open lands were cut off, in summer, for want of moisture. In Scotland, particularly, I observed much wheat that was still in the bladed grassy state, changed to the yellow harvest color, before it had shot an ear; particular plots being scorched, as by fire, to the roots.

But, on loamy soils, of a good depth and

middling texture, crops in general were remarkably fine. So many full, yet standing, crops of wheat I never before noticed. Barlies, where they rose well from the seed, were also remarkably fine; and oats, on this description of land, were above par. Beans universally good. 56. THE SEASONS OF 1800.

BUT the most remarkable effect, of the seasons of the present year (1800) is that of WHEAT being, in particular situations, injured by BLIGHT, or MILDEW,—*in a dry summer.* In this District (the VALE of EXETER) many fine-looking full crops were, in a manner, cut off by this malady: the straw becoming black as soot, and the grain shrivelled and light. In one instance which I particularly attended to, it was barely worth the labor of thrashing out; even at the present prices! owing, however, in some considerable degree, I apprehend, to the imprudence of the grower; who suffered it to stand, *to ripen,* after the blight had seized it: while a more judicious manager, in this quarter of the county*, by cutting his wheat, *as soon as he perceived it to be struck with the disease,* preserved it, he believes, from material injury. BLIGHT OF WHEAT.

This

* Mr. SMITH, of Axminster.

56. BLIGHT OF WHEAT.

This precaution, however, it is very probable, ninetynine growers in a hundred did not take: and the country may have lost, in the most alarming hour of scarcity, some hundred thousand quarters of wheat; by this one defect in English agriculture! *

1804. A similar, but more universal, effect took place, this summer; which has likewise been characterized by dryness; at least, in those parts of the Island in which my observations have been made.

On my return from South Wales to London, early in September, wheat crops evidently appeared, by the dark hue of their straw, or their stubbles, to have been more or less blighted: excepting in a few instances, in Glocestershire, and others in Oxfordshire; in which instances, only, strong, yellow, *healthy* stubbles were observable.

The CAUSE of the DISEASE, in the country in which I had the best opportunity of observing it (Caermarthenshire), appeared, very evidently, to proceed from some COLD RAINS, which fell about the middle of August. Before that time, wheat crops in ge-

* See the Rural Economy of Glocestershire, for remarks on this important point of management.

56.

BLIGHT OF WHEAT.

neral looked healthy, and were beginning to change to a bright color. But presently after a few cold wet days, the malady became obvious to the naked eye. The straw lost its smooth, varnished surface; being occupied by innumerable specks; which changed, in a few days, in less than a week, to a dark or blackish color; giving the straw a dusky appearance *.

A gentleman of Caermarthenshire, who is attentive to agricultural concerns, is of opinion, that this destructive disease may be *prevented*, by *sowing old seed;* namely, wheat of the preceding year's growth, instead of new wheat; agreeably to the practice of the Cotswold Hills of Glocestershire. I am much inclined to think, that, by *sowing early*, agreeably to that practice (see Glocestershire, II. 51), this fatal disease might frequently be avoided; early ripe crops being, from all the observations that I have hitherto made, the

* Devonshire had its rains in the ripening season of 1800,—see page 312. A third instance of the blight of wheat, succeeding rain, was observed in the same county, in 1794, and is noticed in page 251 aforegoing. And a fourth was equally obvious, in 1785, in the Midland Counties: as may be seen in the Rural Economy of that department; Minute 74.

56. BLIGHT OF WHEAT.

the least subject to its baleful effect. Corn which ripens under the hot summer sun of July is not so *liable* to cold chilling rains, as that which remains unmatured, until the sun begin to lose its power, and the nights to encrease in length and coolness.

A *certain* PREVENTIVE of this disaster would be a discovery worth millions to the country. Until this be made, let the grower of wheat, not only endeavor to sow early; but let him look narrowly to his crop, during the critical time of the filling of the grain; and whenever he may perceive it to be smitten with the disease, let him lose no time in cutting it: suffering it to lie on the stubble, until the straw be firm and crisp enough, to be set up in sheaves, without adhering in the binding places:—allowing it to remain in the field, until the grain shall have received the nutriment which the straw may be able to impart. Where wheat has been grown on "lammas land," and the ground obliged to be cleared by the first of August, crops have been known to be cut, "as green as grass," and to be carried off and spread upon grass land, to dry. Yet the grain has been found to mature; and always to afford a fine-skinned beautiful sample. Raygrass that is cut,

56.

BLIGHT OF WHEAT.

even while in blossom, is well known to mature its seeds, with the sap that is lodged in the stems. Hence, there is nothing to *fear*, from cutting wheat or other corn, before the *straw* be ripe.

1805. APRIL. That the *operation* of this disease is carried on by the *fungus* tribe, evidently appears, from the ingenious and persevering labors of botanists *. But fungi, it is equally evident, are an *effect*, not the *cause* of the disease. They are the vermin of the more perfect vegetables; and fasten on them, whether in a dead, or in a diseased, state; but seldom, I believe, while they are in full health and vigor. Their minute and volatile seeds may be said to be every where present, —ready to produce their kind wherever they may find a genial matrix. Such, at least, appears to be the nature of the fungus, or fungi, of wheat; for it may be liable to the attack of more than one species. In a dry warm summer, which is well known to be favorable to the health, vigor, and productiveness of the wheat crop, the seeds of fungi are harmless, *so long as the fine weather continues.*

* As they are set forth in a paper, just published, by Sir JOSEPH BANKS.

56. BLIGHT OF WHEAT.

nues. On the contrary, in a cold wet season, which gives languor and weakness to the wheat plants, few crops escape, entirely, their destructive effects. A standing crop not unfrequently escapes, while plots that are lodged in the same field, especially in pits and hollow places, become liable to their attack. And, by the facts above stated, we plainly see, that even strong healthy crops may, in a few days, or perhaps in a few hours, be rendered liable to be assailed;—not progressively, as by an infectious disease; but, at once, as by a *blast* or *blight*. In the STATE of the ATMOSPHERE we are to look for the cause of the disease, in a *standing crop:* and nothing is so likely to bring on the fatal predisposition of the plants as a succession of cold rains, while the grain is forming. The coolness necessarily gives a check to the rich saccharine juices which are then rising towards the ear; and the moisture may, at the same time, assist the seeds of the fungi to germinate and take root. Thus reason and facts concur in pointing out the CAUSE, and the OPERATION, of the disease *. The NATU-

* There appear to be two reasons why corn which happens to be struck with this disease, in a dry warm summer, is exposed to excessive injury; as facts pretty

RAL EVENT is too well known: and it is the BUSINESS of ART to endeavor to prevent it. 56.

BLIGHT OF WHEAT.

If, by cutting down the crop, as soon as it is found to be diseased, the operation can be stopped,—as experience, in different instances, has shown that it may,—the REMEDY is easy *.

A pro-

evidently show that it is. The habits of the plants render them more susceptible of injury—their rich juices more liable to be checked—and the seeds of fungi, it is probable, are more widely, if not more plentifully, distributed,—by such a state of the air, than they are by a cool moist atmosphere.

* It may be asked in what manner the remedy is thus effected. But, to the practical farmer, the FACT is all that is required. To him, it is equally as indifferent, to know the operation of the remedy, as the operation of the disease. Those who have profited by the remedy, here recommended, believe, that it "kills the mildew." (See Glocestershire, Vol. II. p. 54.) And if it shall appear, that the fungus of wheat requires a free supply of air, to keep it alive, or in a state of health and vigor, the effect of cutting down the crop will be explained. It will perhaps be found, by experience, that the closer it is allowed to lie upon the ground, and the sooner it is bound up in sheaves (provided the natural ascent of the sap to the ear be not thereby interrupted), the more effectual and complete will be the remedy.

Further, it may be suggested, on the evidence of attentive observation, that if wheat, which has been attacked by this disease, be suffered to remain in the field, with

56. BLIGHT OF WHEAT.

A probable mean of PREVENTION is that of inducing EARLY RIPENESS (for reasons above offered); either by *sowing early;* or by *forcing manures;* or by selecting and establishing EARLY VARIETIES—of WHEAT most especially;—as early varieties of peas, and other esculent plants, are raised by gardeners:—a work which only requires ordinary attention; and which, it is hoped, will, without delay, be set about and encouraged, by every attentive grower of wheat, and every promoter of rural improvements, in the united kingdom.

For the method of raising and improving varieties of wheat, see the Rural Economy of Yorkshire, Vol. II. page 4.

the ears exposed, until it may have received the ameliorating influence of dews, or moderate rain (to soften, relax, and assist the natural rise of the sap), the more productive it will probably become. See Minutes of Agriculture, in Surrey, No. 4.

And it may be still further added, that grain, which is cut while under ripe, is less liable to be injured in the field, by moist weather, than that which has stood until it be fully or over ripe.

57.

SOUTH SOMERSETSHIRE.

1801. JUNE 17. NOTICES, in travelling across the SOUTHERN DISTRICT of SOMERSETSHIRE;—from Ilminster, by Ilchester, and Castle Cary, to Wincaunton.

ILMINSTER to ILCHESTER. The elevation of this line of country is inconsiderable: the whole passing through an extensive vale District. The surface, on the Ilminster side of the vale, is finely swelling; and preserves the vale character to near Ilchester; where a wide level of water-formed lands occupy what was once, it is probable, an estuary, or wash, into which the tide occasionally flowed.

The rivers, in this line of road, are the PARRET, and the IVEL, or EOVIL; the former being crossed toward the midway; the latter (which is the main river of the vale, but changes its name on its junction with the Parret, near Langport), at Ilchester.

The soil is of an extraordinary nature, and uniformly of a superior quality. It has the appearance of a cold, weak, infertile clay;

57. SOUTH SOMERSETSHIRE

but is, in reality, a rich silt, or mud,—and mostly incumbent, I apprehend, on a calcareous base; producing, in singular luxuriance, the various crops of English agriculture.

The ordinary farm products that meet the eye, at this season, are wheat, barley, beans, peas, potatoes, *flax*, cultivated herbage, meadow grass, and pasturage; with much orchard ground; and with more *orchard trees in hedgerows*, than I have elsewhere observed;—the District of Broomyard, in Herefordshire, not excepted.

The cattle observable in this interesting stage are numerous, and uniformly of the Devonshire or West-Somersetshire breed.

The general appearance of the country is that of a rich vale; strongly featured, by bold rising grounds, and bounded by interesting distances; with the more distant hills of Wiltshire rising high in the offscape.

ILCHESTER to CASTLE CARY. The flat of marshes lies chiefly on the West side of the river; on which the town is situated. On the East side, the lands, tho low, rich, and nearly level, are not water-formed; being situated a few feet above the marshes, and show a varied surface.

57.

SOUTH SOMERSET-SHIRE.

Thin, low, rich lands extend some three or four miles from the town; and, on their confine, a somewhat higher, but still nearly level, stage of land rises; and continues, without great variation of surface (but with rising grounds sufficient to show off the richness and beauty of the country), to Castle Cary.

The lands, on this side of the vale, differ much, in their nature, from those on the West side. The low grounds, towards the town, are of a strong clayey texture; and judging from their apparent coolness, they are probably incumbent on a base of a kindred nature. But leaving these, and rising the second stage of land, the base is evidently limestone; tho the soil continues of a clayey quality. Further eastward; a lighter limestone loam succeeds: this fertile line of country terminating in the rich deep lands of Almesford and Castle Cary.

At Castle Cary, ascend the same stage of limestone lands that was crossed between Redlynch and Castle Cary (see page 264), and which continues with little, if any, interruption, to WINCAUNTON:—a description of lands that appear to occupy some considerable extent of this quarter of Somersetshire.

58. 58.

SOUTH SOMERSET-SHIRE.

1802. JANUARY 14. CURSORY REMARKS, in travelling between CREWKERN and ILCHESTER; and thence, by the direct road, to WINCAUNTON: with general remarks on the VALE of ILCHESTER.

The road winds judiciously among the tall steep hills, in the neighbourhood of Crewkern, and enters the same extensive tract of vale land that was crossed, by another line, between Ilminster and Ilchester (see the last MINUTE); joining the Ilminster road, in a central point; near six miles distant from each of the three places.

The richness, productions, and general appearance of the country are similar, in this and the former line; except that a greater proportion of grass lands, and especially of flat water-formed meadows (by the sides of the Parret) are seen in the Crewkern quarter of the vale.

Pass through Ilchester, and five or six miles further eastward, by the former road; leaving it at Sparkford, and presently winding in, among the Cadbury hills, and other

limestone heights which divide this vale from that of Sherburn, or Blackmoor, in Dorsetshire. 58. SOUTH SOMERSETSHIRE.

This line of road is well drawn; worming its way, through rich meadowy lands, and well cultivated vallies. The line of country from Queen-Camel Hill to Wincaunton is finely surfaced; and, by a few alterations in the present line of road, may be made delightful to travel through;—even at this season.

GENERAL REMARKS

ON

THE VALE OF ILCHESTER.

This highly favored passage of the West of England; which, in fertility of soils, and richness of features, is rarely to be equalled in the kingdom at large, may be said to be unknown to the rest of the Island! From the time that the Roman fossway, which crossed it, was suffered to go to decay, until the present toll roads were formed, the area of the vale, especially on the West side of the river, must have been impassable, in the winter months; unless by its native inhabitants. Hence, not a habitation, superior to VALE OF ILCHESTER.

58. VALE OF ILCHESTER.

a farm house, is there seen: while its banks, on every side, are scattered, not with residences only, but with market towns of more or less consideration.

In this and other respects, the Vale of Ilchester bears some resemblance to the Wealds of Kent and Sussex: its superior richness, and the greater natural beauty of its surrounding banks, and internal features, forming its differential character.

Its boundary, toward the South, has been mentioned. On the North, it is closed by the projecting hills of Langport and Curry, which approach so near to each other, as to leave little more than room for the waters of the vale and its banks to pass off, into the wide vale of Bridgewater; which reaches from this outlet to the sea. On the East, it is bounded by the range of low-lying limestone lands that has been repeatedly noticed; and, on the West, by the rising grounds between Crewkern and Chard, and the higher lands, between Chard and Ilminster. The towns of Langport, Somerton (partially cut off by a narrow point of the Langport hills), Castle Cary, the Cadburys (villages), Yeovil, Crewkern, Chard (at a short distance), and Ilminster, may be said to stand on its mar-

58.
VALE OF ILCHESTER.

gins; which form nearly an oval; with the town of Ilchester situated within its area;—nearly in its Eastern focus:—the greater part of its lands lying on the West, or Southwest, side of the river.

The exact extent of these vale lands is difficult to be calculated. From Chard to Castle Cary is about twentyfive miles, in a straight line through the middle of the vale. But the vale lands do not reach the whole length. And from Langport to Yeovil—the shorter diameter of the oval—is more than ten miles. But within these dimensions are included, in different parts of the area, some high grounds that do not bear the vale character. On these premises, the vale lands may be estimated at one hundred and fifty to two hundred square miles.

The natural characters and agricultural products of those lands have been noticed. Their state of husbandry is at present equal, or superior, to that of the more Western department at large. And it only remains to remark, with respect to the rural economy of this vale, that in it we discriminately trace the Eastern termination of the DANMONIAN BREED of CATTLE. About Wincaunton, and from thence towards Ilchester, the party-colored

58. VALE OF ILCHESTER.

cows of East and North Somersetshire are in full possession of the country. On approaching Ilchester, a few individuals of the well framed, beautiful, red breed, are seen mixed with the colored variety. But on crossing the river, the red breed is in like possession! A more striking transition I have no where observed. The Devonshire, or West Somersetshire, breed of cattle are nearly as pure, and as free from marks of debasement, on the Western banks of the Eovil, as on the banks of the Tamer, in the West of Devonshire.

In a political view, it may be said of these vale lands, that, notwithstanding their extreme fertility and productiveness, they have been lying, century after century (until of late years), in a state of obscurity and neglect, through the want of sufficient roads across their area *. The town of Ilchester, which was a Roman station of note, and once, perhaps, the principal place in the county, has dwindled to a mere village. Had it not been for the circumstances of its being

* At present, lines of good roads are singularly numerous;—are seen crossing the area, in every direction. The first line of turnpike was begun, about forty years ago.

a borough town, and of the county jail still standing here, (having been lately new-built, tho the assizes are never held at less than fifteen or twenty miles distance!) there might not, now, have been one stone left upon another. Yet, extraordinary as it may appear, Ilchester is situated nearly in a direct line between the metropolis and the Western extremity of the kingdom: in the straight road between London and Exeter, Plymouth, Falmouth, &c. Of the two great Western roads that have been travelled, age after age, one lies twenty miles to the South, the other thirty miles to the North, of Ilchester!—which is not only in the nearest (by several miles), but in the most travelable line of road (with respect to hills) between those extreme points; as will be shown in the following Minute. 58. VALE OF ILCHESTER.

59.

1802. JANUARY. I had two motives for exploring the VALE of ILCHESTER (see the last Minute): one of them was to gain some knowledge of that intermediate District; and the other to endeavor to trace out the most eligible NEW LINE OF ROAD.

59. eligible line of road, between the METROPOLIS and the MORE WESTERN COUNTIES.

EW LINE F ROAD.

The late Sir FRANCIS BULLER appears to have had the merit of first endeavoring to strike out a new line of road, between London and the Landsend,—shorter than either of the present lines (see the foregoing Minute): and his friend, Mr. FANSHAWE, Recorder of Exeter, &c. &c. who is ever attentive to matters of improvement, trod in his steps. But their favorite line, by HEYTESBURY, BRUTON, &c. to ILMINSTER, is evidently indirect; bending too much to the North. The more direct line, between London and Exeter, &c. as well as between the two nearer *given points* of *Andover* and *Honiton*, is by MERE and WINCAUNTON. *Amesbury* and *Ilchester* are *still nearer given points;* and Deptford Inn, Willoughby Hedge, Mere, and Wincaunton, lie in *a direct line* between them *. And what gives this line a further preference, is the circumstance of its being already formed;—the entire line, to Ilminster, being, at present, turnpike road; —and continues, such, from Ilminster, by Chard, to Honiton. But Chard is situated out of the direct line; and the road, between

* See CARY's large map of England.

59.

NEW LINE OF ROAD.

that place and Honiton, is intolerably unlevel. Hence, a new road, between Ilminster and Honiton is desirable;—and an apt line fortunately presents itself;—winding round the heads of the deep vallies that are crossed by the Chard road; yet is nearer, by some miles, than the present line.

1804. Being thus strongly impressed with ideas of the great usefulness, as well as the evident practicability, of the alteration, and encouraged by my friend, Lord HEATHFIELD, whose anxious desires to promote public improvements are such as few men possess, I was induced to bestow some time and thought on bringing it before the public.

A surveyor of the first eminence was instructed to draw out a sketch of the two lines of roads; namely, the present line, by Dorchester, and the proposed line, by Wincaunton; as well as to ascertain and report such facts, as a cursory survey, and local knowledge, might furnish.

The annexed engraving will give a general idea of the proposed improvement; and the following Report will show, more fully, its uses and practicability.

"REPORT

59.

EW LINE
F ROAD.

"REPORT on the annexed PLAN of ROADS, between HONITON and ANDOVER.

"THE present post road from Honiton, through Dorchester and Salisbury, to Andover, is - - - - - 92½ miles.

"The proposed post road from Honiton, through Ilminster, Ilchester, Wincaunton, &c. to Andover, is - - - 85½

Saving in the distance near one twelfth, or - } 7 miles;

besides, what is much more important, nearly four hours in point of time, by avoiding all the long steep hills, between Dorchester and Honiton; which is very great, when it is considered that Falmouth is the post town for the merchants of London and other places of commerce, for their correspondence with more than half the trading world. This proposed road may therefore be viewed as a great mercantile advantage to the nation in general, independent of individual accommodation, to the nobility and gentry of Devon and Cornwall, and others resorting to the Southern shores of these counties.

"Another striking advantage of the pro-

posed line arises on the road from Exeter to Bath. The distance, by the present road, through Taunton, Bridgewater, &c. is 82½ miles. But, by the proposed new road, it will be no more than 75 miles, viz. 59. NEW LINE OF ROAD.

Exeter to Ilchester	-	43 miles;
Ilchester to Shepton Mallet		15
Shepton Mallet to Bath		17
		75 miles; thus

saving, in distance, near one tenth of the whole.

"ESTIMATE *of the* EXPENCE *of the* NEW ROAD *to be made between* HONITON *and* ILMINSTER *.

"The new road will not exceed eleven miles, and I am of opinion that ten will be found sufficient; and, as it will go through a country full of inexhaustible quarries of flints and gravel, the cartage of materials, to make and keep the road in repair, will be found easy. One stone arch, over the river Yar, in a part where the stream is small, being near its source, is the only bridge required.

The

* Shown by the dotted lines in the plan.

59. NEW LINE OF ROAD.

The road may be formed and made,	£
at about - - - -	1000
Purchase of land, for the same, about	50
Building the bridge, about - -	250
Total -	£1300

"I am of opinion that £1300 is the utmost the whole can cost; and that no part of the road, if properly laid out, will rise above three inches to a yard; which is fair trotting road for a chaise and pair, going either way *.

"W. BOND."

Axminster,
22d Feb. 1802.

Copies of the engraving, together with the above Report in a printed form, have been distributed among those who are interested in the execution of the design †. I insert

* The above estimate appears to be low. But were the road to cost three times the sum, it is more than probable, that the tolls would amply repay the interest; as the expence of repairs would be small; the materials being durable, and at hand. The sanction of PARLIAMENT may be said to be all that is wanted.

† A survey was afterward taken of the proposed line of new road between Honiton and Ilminster; a sketch of it engraved; and distributed, as above.

INSERT FOLDOUT HERE

59. NEW LINE OF ROAD.

them, here, as a proposed improvement of the West of England, as well as to endeavor to give them a durable form;—in hopes, that, when the circumstances and the spirit of the times shall tend towards improvements of this nature, the plan will be carried into effect.

HAVING bestowed much attention on this subject, it may be right to add, that the only OBJECTIONS, which I have heard, to the proposed line of road are, that it will interfere with the present established line, by Salisbury, Blandford, Dorchester, Bridport, &c.; and that these large towns will draw off the travelling from the more direct road.

These objections are admitted:—namely, that the keepers of posting houses, in those towns, will more or less feel the alteration: but not the towns at large; which will, nevertheless, enjoy their *stage coaches* and *waggons*:—a fortunate circumstance for those who *travel post;* and who will of course choose the quieter, more commodious, and most expeditious road. Let the present line remain the road of TRAFFIC; the proposed line that of DISPATCH.

The inconveniencies and delays, upon the

59.

NEW LINE OF ROAD.

present great road, occasioned by the arrival of packets at Falmouth, and fleets at Plymouth and Torbay, are well known to those who are accustomed to travel it.

To avoid these interruptions, there has lately been much travelling, by Taunton and Somerton; leaving the great road at Exeter:—a circuitous route, which is strowed with difficulties. The steeps between Exeter and Taunton, are nearly equal to those between Honiton and Bridport, in the line of the present great road.

The advantages to arise to Government from the proposed improvement, as well as to gentlemen who reside in the more Western counties; and the numerous travellers, whether naval or commercial, to and from the Western ports, are so obvious and great, and the means of effecting it, so easy, that, if the country continue to prosper, it cannot remain long unexecuted.

60.

COAL ASHES.

1801. DECEMBER 30. COAL ASHES are variously appreciated, by cultivators, as an article of manure. While one asserts their fertilizing quality, another condemns them

as impoverishers of the soil. Both may be in part right. On cold rushy meadows, I have seen them of great use. They have not only given a check to the grosser weeds; but have caused an encrease of the finer herbage, —*the first year*. But, afterwards, the produce has reverted to its former quality, and the ground been left in an impoverished state. 60. COAL ASHES.

A striking effect of this twofold effect of coal ashes occurs on the farm of Buckland. For several years past, extraordinary quantities of what is termed "Plymouth dung" have been brought, in barges, up the Tamer and Tavey, and spread over the lands of this farm. But what is improperly called by that name is merely the rubbish of dust holes, and the sweepings of the streets; coal ashes and cinders being evidently the chief ingredients. Yet as a stimulant of the turnep crop, its effects are extraordinary. I have remarked an instance, in which a plot, that had been left by accident unmanured, was of no value; while the rest of the piece bore a luxuriant crop of turneps, from this manure, alone. And its effects, on other crops, *for one year*, are very discernible. But, notwithstanding the sums that have been ex-

60. COAL ASHES.

pended on this manure—one hundred pounds, or a much larger sum, having been annually squandered away upon it—the arable lands of the farm—many of them of good natural stamina—are now in the lowest state of poverty: especially those which lie near the kay, and have no doubt had the largest portion. The second or third year's lays, tho in a high state of tillage, and pastured the first year (never mown), are in a manner bare of herbage: a few puny weeds, and some starved moss, being their only covering.

Relating these circumstances, to a gentleman of this county who had made similar observations, he mentioned an eminently judicious METHOD of USING COAL ASHES, on GRASS LAND: namely, that of spreading them on coarse mowing ground, in autumn or early winter; in order *to fine the herbage*, and to give *one crop of hay;* and, as soon as that can be got off the ground, to manure it with dung, or compost; in order to *carry on the growth of the improved herbage.*

61.

SHEEPFOLD ON GRASS LAND.

1802. NOVEMBER 1. With a view towards recovering the impoverished lay grounds

61.

SHEEPFOLD ON GRASS LAND.

of this farm (see the foregoing Minute), the effect of the SHEEPFOLD, run slightly over them, has been tried, during the preceding summer.

The result is highly favorable. The herbage has been encreased, threefold. And altho the first growth is too rank, or otherwise unsavory, to sheep, cows depasture upon it with evident partiality.

1804. NOVEMBER. Altho the luxuriant flush of grass, which rose presently after the folding, has passed away, still the soil is thickly covered with sweet herbage—of twice the value, as a sheep pasture, of that which occupied the ground, before the fold was run over it. And, it may be added, folding sheep, thinly, on dry grass land, is not greatly injurious to the flock.

62.

TIMBER FOR REPAIRS.

1803. AUGUST. The following regulations have been made, respecting the taking down of timber for repairs; and may, perhaps, be found useful on other estates.

The woodward has instructions to note down, in his walks, the situations, &c. of such trees as he may observe to have been

62. injured by the wind, or are otherways going, or likely to go, to decay; as well as those which are stunted in their growth, or are too much crowded, to make further progress, without injuring better trees; and, in general, such as are proper to be taken down for the different uses of the estate; whether for erecting or repairing buildings, or for gates, &c. &c. The acting manager, to employ an experienced carpenter, to make the necessary estimate of the quantity and quality of the timber required for such works as may, from time to time, be ordered. And the three, in company, to select and mark proper trees, for the given purpose.

TIMBER FOR REPAIRS.

Under these regulations, duly observed, no waste, nor unnecessary expenditure, of the crop of growing sale timber, can be incurred; nor any time be fruitlessly expended, in searching for the most suitable trees.

63.

MUSHROOM RINGS.

1804. May. Observing, in a well soiled grassland paddock,—which is shut up for mowing, and whose herbage, in general, has now a pale yellowish cast,—many dark-green

63. MUSHROOM RINGS.

crooked lines, or more perfect rings (familiarly termed FAIRY RINGS—here, provincially "pixey rings," or "mushroom rings"), the herbage of which is thickset, luxuriant, and sweet to the taste; being of more than twice the value (at present *) of that of the piece at large;—I became desirous to know from what cause such valuable properties could arise.

To try to come at the fact, a trench was dug across one of the fertile stripes; so as to expose its soil and subsoil; as well as those of the ground, immediately adjoining, on either side of it.

Under the gross herbage, a white powder was found to be plentifully mixed with the soil; so as to give it the appearance of lime and earth mixed together, in the manner practised,

* In summer-pasture grounds, these rings frequently appear to be barer of herbage than the rest of the field. But this may be owing to the grass of those parts being sweeter; and of course more closely bitten, than the less palatable herbage.

1805. MAY. This cold backward spring shows, in a still more striking manner than the last, the superior productiveness of these rings. Their herbage, as an article of spring pasturage, this year, is of three or five times the value of the ordinary herbage.

63. MUSHROOM RINGS.

practised, here, for manure: the efflorescent matter being what is termed, in different parts of the Island, "mushroom spawn;" and is universally collected, by gardeners, I believe, as a necessary ingredient, in forming artificial mounds, for the purpose of producing mushrooms*. While under the ordinary herbage, no appearance of this white powder was observable.

Has the natural history, and vegetable economy of the mushroom been maturely studied? What is the nature and function of this mushroom-producing matter;—if such it is, in fact? Is it the cause, or an effect, of the richness of herbage? If a cause, how can it be propagated?

The investigation of this subject may not be merely an interesting pursuit, in natural knowledge, and abstract science; but may possibly disclose something of use, in practical agriculture.

This subject being of a mysterious cast, is prolific of theoretic ideas. Is that which is termed the spawn of mushrooms, the seed or the matrix of fungi? Or is it a sub-ter-

* In the course of the summer, these rings were observed to produce many mushrooms: some of them, at least, of the large edible species.

63. MUSHROOM RINGS.

rene plant; which, by vegetating and decaying in the soil, provides food not only for the fungus tribes, but for the more perfect plants?

Richly soiled, old grass land (in which only I have observed this efflorescent mold) may, in general (tho not obviously) contain subterranean plantlets, as well as animalcula, that prepare food for surface vegetables. This suggestion may serve to account, in some measure, for the progressive improvement of such lands, by age; and their productiveness of arable crops, when they are broken up, by tillage.

The fact is, that the soils of grass lands, to the depth of many inches, are capable of being furnished with an efflorescent mold, that is peculiarly productive:—and if any method of propagating, or forwarding, that productive quality can be devised (either by sowing a portion of the mold with the seeds of herbage, when grounds are laid down to grass, or by previously plowing it into the soil, or by any other mean that study and perseverance may dictate), the discovery may be found highly beneficial to the country, and mankind.

64.

64. 64.

WATERING MACHINE.

1804. JUNE. The turnep crop of last year, throughout the Western counties at least, was deficient in the extreme; owing, chiefly, to the dryness of the season of sowing: the last being altogether, one of the driest summers, perhaps that Devonshire has experienced. A deficiency of grass, too, as winter food for sheep, was the natural consequence, and hay was scarce. Numbers fell victims to hunger; and flocks in general were reduced to a starving state. The Buckland flock suffered, by this disaster, not less, I apprehend, than two hundred pounds. The loss to the kingdom at large must have been immense.

To guard against the loss of the turnep crop, in future, through the dryness of the ground in the sowing season, an idea of watering it, after sowing;—in the manner that roads are watered; or where turneps are cultivated on ridgets (as in the Scotch and North-of-England practice) by letting the water out, partially, upon the ridges;—was suggested.

But well knowing the evil, rather than the beneficial, effect of *a slight superficial watering*, on infant turnep plants (see MID-

LAND COUNTIES, MIN. 84, page 165), and perceiving that even a copious stream, let out upon sharp ridgets, could amount to no more than *a slight superficial watering*,—as the principal part of it would necessarily run down their sides, into the intervals; and be entirely lost to the intention,—I clearly saw the inutility of the proposed scheme. 64. WATERING MACHINE.

Nevertheless, having long experienced, in planting trees and shrubs, the good effect of WATERING THE PITS, before the plants be inserted (see TREATISE on PLANTING, &c. also MIDLAND COUNTIES, MINUTE 146), and of afterward conveying water down to their *roots*, if required,—I was led to the thought of depositing a supply of water, WITHIN THE RIDGES, before sowing the seeds of turneps, or inserting the plants of ruta-baga or cabbages; and, afterward, if found necessary, of conveying, from time to time, as the season may require, fresh supplies of moisture *to the roots of the plants*; and, through these means, of securing a crop, with a degree of certainty, in every season.

These operations being evidently practicable, by the means of hollow coulters, similar to those of the pulse drill, which I formerly constructed (see MINUTES of AGRI-

64. WATERING MACHINE.

CULTURE, in Surry, PLATE II.), I have had a watering machine constructed on the same principle.

The body of the machine is a water-tight cart; whose wheels include, or span, two ridges; the horses drawing in the interval between them. To the hind part of the cart, two slight beams are hung, so that their ends may drag upon the tops of the ridges: the lower ends of these beams being sheathed, or shod, with hollow coulters. Immediately above the upper ends of the beams, the cistern, or body of the machine, is perforated near its bottom, and two leathern pipes (an inch or more in diameter) inserted, to convey the water down into the hollows of the coulters: grooves being formed on the upper surfaces of the beams (which are framed together, with cross bars) for the pipes to rest in; and two handles fixed to them; in order to guide the coulters, with proper effect, along the middles of the ridges: sufficient play in the hinges being allowed for this purpose.

The ridges are formed with a common plow;—on the near, or lefthand, side of which a regulating wheel is fixed; to make a rut or mark on the surface; as a guide to

64.

WATERING MACHINE.

the plowman in forming the next ridge; in order that he may be able to raise them at exactly equal distances.

The distance adopted is half the span of the farm-carriage wheels of this country: namely, two feet nine inches. For, by this expedient, not only ordinary carts may be readily converted to the purpose of machines, but if these be formed, anew, their wheels will follow the common cart tracks, in conveying water;—whether from a stream, a pond, or pump; or, which is most convenient when it can be had, *a shoot, placed in the head of a reservoir;*—under which the machine being drawn, it is easily and expeditiously filled *.

In

* An implement of this intention may be more readily constructed, by placing a large cask in a common cart; and letting the water down, into a cross trunk, behind, in the manner of the road-watering machine; the leather pipes being inserted in the trunk. But this is less simple, and substantial, than a watertight cart; which requires no regulating valve to let the water down, or to prevent its flowing. This is done by merely lifting up the frame, behind, until the points of the pipes be raised above the top of the cistern (about twenty inches deep); to which a long iron hook is fixed, to keep the frame in that elevated position;—whether on the road, or in turning at the ends of the ridges, or in stopping, in the middle of the

64. WATERING MACHINE.

In work, the coulters divide the tops of the ridges, a few inches deep; and the water being emitted at apertures near their points (as they are shown in the plate above referred to), it is of course lodged in the bodies of the ridges. Not a drop is wasted; nor, when the ground works well, is there any appearance of it on the surface: the dry soil running in, after the coulters, and covering it up, as it is deposited. Nevertheless, shallow grooves are left along the tops of the ridges; and become useful for purposes to be mentioned.

On these prepared ridges, turnep seeds are to be sown, in double drills (one on each side of the groove or channel); or plants of "Swedish turneps," or of cabbages, to be inserted, in double lines; a few inches from the channel; and alternately on either side of it:—not upright, but with their heads leaning somewhat outward from the channel; —*their roots being thus bedded in the moistened mold.*

Should dry weather continue, and the plants begin to flag, the channels on the ridges are

the work. As the horses move off, the frame is dropped; as they stop, it is raised. Either movement is in a manner instantaneous; so that no water runs waste.

ready to convey additional moisture, *immediately to the feeding fibres of their roots.* 64.

WATERING MACHINE.

In watering the plants, wooden coulters may be used; they being less liable, than those of iron, to injure their roots; yet are sufficiently effective in re-opening the channels, wide enough, to receive the required supply, without incurring a waste of water *.

November. A piece of cabbages, planted, and watered, in the manner above described, is one of the finest crops I have seen. Tho planted on ridges of the width mentioned, and about the same distance along the ridges, the surface is now fully occupied; as if they had been planted, a quincunx, over the plain area of the field. By inserting the plants obliquely, in the manner above mentioned,

* As the water, by reason of its greater weight, is emitted faster when the cistern is full, than when it is nearly empty, it is right, in watering the ridges before planting, to go twice over the ground: beginning with a full cistern where the last was emptied; going the reverse way: by which means the channels on the ridges may be straightened and improved, where they may be defective. By tilting the cistern, a nearly equal stream may be produced; so that, in watering the plants, going once over the ground will suffice; and be found a ready operation. With two carts and water at a convenient distance, several acres may be gone over, in a day.

64. WATERING MACHINE.

tioned, the heads of the cabbages now lean over the intervals; and thereby not only enjoy an equal distribution of air and head-room, but a facility to shoot off the rain water which falls on their flattened tops, and thereby to prevent a well known cause of premature decay.

I cannot refrain from suggesting, here, that,—had an implement of the kind which is now brought into practice, been thought of, heretofore, and received into common use, —a million of property, it is probable, might. last year alone, have been saved to the country.

65.

NORTH SOMERSETSHIRE.

1804. OCTOBER 29. EXCURSION in NORTH SOMERSETSHIRE:—from *Bath*, by *Marksbury*. *Clutton*, *Chew Magna*, over *Broadfield Down*, and by the Bristol road to *Langford* and *Cross Inn*; thence to *Axbridge* and *Chedder* *.

Proceed down the charming valley of the Avon, below Bath; keeping the Bristol road (now in a shameful state!) about three miles.

Leave the base of the valley, and turn toward its Western banks: the road winding,

* To finish my general view of the WEST of ENGLAND.

65. NORTH SOMERSETSHIRE.

happily, up a shallow dell (full of inhabitants); with grassy swells on either hand, and many orchards. The soil a redish limestone loam.

Reach the top of the heights (without perceiving any difficulty in the rise). The soil remarkably stoney: yet small ozier beds appear on these stoney heights! Observe a flock of horned ewes; and a four-ox plow team; near the road.

A field of yellow, unhoed turneps.

A fallow field *covered* with stones! Sowing wheat on narrow, West-of-England ridges, on these stoney lands.

Leave a rough hogsback hillock, on the left:—apparently a common pasture.

A length of new wall runs by the side of the road; with the courses of stones, alternately dry and mortared: also with broad upright lines of cement, at stated distances; doubtlessly, to strengthen the work.

Stone quarries by the side of the road; with their bottoms now covered with water. This may account for the ozier beds.

Almost the whole of these level-topped heights is occupied by arable inclosures.

Turn to the left, round the base of a remarkable globular hillock (Stanton Bury Hill);

65. NORTH SOMERSETSHIRE.

Hill): a fine bason of land opening on the right.

Now much rich grass land appears; covering even the highest swells to their summits! the soil apparently a free limestone loam.

Meet many coal carts and waggons. What wretched horses; and savage drivers!

Some fatting cattle are now seen in the grazing grounds of these hills.

Pass through MARKSBURY: a finely situated village.

Cattle, here, are of a mixed impure kind: nothing of a distinct breed appears. Several field wells, for the use of cattle, are observable on these hills: the limestone, probably, resting on a bed of clay.

The country, here, is wholly inclosed; with hedges (no walls); in smallish, and remarkably square, inclosures; as if they have been formed from open pastures.

How finely billowy is the surface of this passage of country. The soil good, and well inhabited. The villages numerous and respectable; and their churches of unusual size and beauty. What a charming country to live in: at least in the summer season: yet not a *place*, nor even a *placelet* is seen, in a circle of many miles. Wood, it is true, is

at present wanting: but this is probably owing to a want of resident proprietors. 65. NORTH SOMERSETSHIRE.

More rich grass grounds, and some low-stemmed orchards: (eight miles:) many cows; apparently of a cross breed, between the Glocestershire and the long-horned.

A deep stone quarry is seen near the road; exhibiting horizontal strata of stone and earth, alternately: the prevailing substructure, perhaps, of the District.

Still a rich, beautiful, billowy passage: with large farmsteads scattered over it.

A distant view breaks forward. But still the ground travelled over is upland; covered with fine herbage. (Nine miles.) The road hedges (a toll road) uniformly well pruned.

Reach the Southwestern verge of the heights, and descend into a finely broken vale District. A place, in front, embosomed among tall trees. Pass through Littleton,—a village of whitewashed walls and pantile roofs. Some long-horned cows. (Ten miles.)

Drop into a rich valley: the land, and the road stones, red. Good grass land; apparently applied to the dairy.

Reach the termination of the direct road; and enter that between Bristol and Shepton Mallet, &c.—turning *back* to the right, to-

65. NORTH SOMERSETSHIRE.

wards Bristol:—a circuitous route; but this is a fortunate circumstance; so far as it lengthens the line of observation.

Cross a wooded dip; and see a large timber wood, on the left;—the first observed.

Leave the vale lands and ascend the wooded hills. See, at some distance on the right, a range of conical hillocks; resembling immensely large tumuli: unusual objects: (Barrow Hill.)

Continue to ascend, for a mile or more, to the height of CLUTTON: a churchen village; and *posting inn*. The elevation considerable: the country falling both ways, to the North and to the South, from the line of hill on which it stands; and which commands an extensive view, Northward, of the Vale of Berkley, skreened, on the South, by the Sodbury Hills.

Return to the Southward: but presently leave the turnpike road, and enter a narrow, abruptly winding, *woodland* lane; leading, between crooked woody hedges, among arable and grassland inclosures, of flat stoney land; similar to that of the Marksbury Hills. The farms apparently large and well managed: good mixed cultivation.

Proceed westward, and see distant hills to

the right (Leigh Down). Good oak timber in hedges, as well as standard trees: oak and other pollards are also common:—the progeny of ancient woods? 65. NORTH SOMERSETSHIRE.

Bend more to the right (nearly North), and dip towards a broad deep bason of vale lands; lying between these and the distant hills.

Enter upon the verge of this fine vale District. The soil red, and evidently rich. An extraordinary growth of gross foggage: opposite a tasteful, elegant placelet; commanding a charming view of this lovely recluse passage.

Descend lower into the vale. The soil still red and of a superior quality. Much grass land; evidently a dairy country *. The whole inclosed with old crooked hedges, and low banks: the road leading through narrow, winding, unlevel, lanes. The lands, here, having been evidently inclosed from a state of woodland. But, at a distance, in the base of the vale, large square fields are observable: formed, no doubt, when the lands were in a state of cultivation, or pasturage.

Still

* The produce of this part of North Somersetshire, being, I understand, *uncolored* cheese.

65. NORTH SOMERSET-SHIRE.

Still keep gently descending, down a winding *wood* lane. But no remains of woodlands appear (unless in the hedges): the soil being now applied to more profitable purposes.

Some tall field orchards: the trees very large, and thinly planted; as in Herefordshire. Also a nursery of tall young trees.

Pass Stanton, a large village; and, at length, touch upon the river, brook, or principal stream of the vale. How few streams of any description are seen in this drive!

Wind to the Westward, up the bottom of the vale: here, wide, and rich. Much orchard ground. And many fine oaks and elms of size. A fine vale passage.

Pass Chew Magna, and its stately tower; in a rich, fine situation *.

Proceed, westward, up a branch of the vale; which is still red, rich, and extensive.

Bend more to the left, and leave the base of the vale; creeping up a narrow, hollow, woodland way: the land still continuing of a good quality. The soil and subsoil red; incumbent on a substructure of redish rock; apparently limestone: the same construction of land appearing to form the whole declivity.

* This fine passage of country might well be named the District, or Vale, of Chew; the name of the hundred in which this part of it is included.

65.

NORTH SOMERSETSHIRE.

Reach the top of the hill; and pass Windford church. The land, here, is lighter, but still of a tolerable quality.

A long range of the MENDIP HILLS appear, on the left: showing, in this point of view, a bold steep front;—that which is seen from Persfield, and the Welsh mountains.

Keep the flattened height. The land, here, is weaker, but still redish.

Enter a wide extent of rough commonable lands; nearly covered with furze and fern: the soil redish: the stock—-small-horned sheep:—(BROADFIELD DOWN.) A full front view of Mendip's strong features; softened by the varnish of an intervening shower: and, forward, a wide extent of low country is perceived; situated between these heights, and the coast of the British Channel.

Join the public road, from Bristol to Bridgewater, &c.; and turn short to the left; nearly southward; still keeping on the flat of the Downs. What admirable road! (of hard stones, broken small;) as firm, smooth, and well formed, as a kept gravel walk.

Another fine vale or valley of land opens! between these heights, and the higher Mendips; lying at the feet of the latter. How rich in land is Somersetshire! comprizing a

65. NORTH SOMERSETSHIRE.

far greater proportion of highly productive, and a less proportion of unproductive, surface, than any other county of the kingdom.

Descend steeply into the wide, rich-looking, well wooded valley. The soil, on the slope, red loam; with a red-stone base; as on the more Eastern face of this extended hill.

A well sized dairy of Glocestershire-like cows, milking, near the foot of the hill.

The soil of the base of the valley is a rich brown loam. Two plots of wad? in high cultivation.

Enter a fertile elm-tree passage; and cross a small rich common,—such a one as is not unfrequently seen in the richest vale districts. The stock, well sized, horned, SOMERSETSHIRE SHEEP:—the prevailing sheep stock of the country.

Approach the steeps of Mendip;—clothed in grass, fern, and brushwood: no heath. The whole face, here under view, has lately been inclosed; but not yet cultivated.

Reach LANGFORD—a village situated at the foot of a branch, or detached mass, of the Mendip Hills. The soil, here, red; as on the opposite side of the valley.

Mount this minor hill, by a steep long

65.

NORTH SOMERSET-SHIRE.

ascent, and command a view of extraordinary grandeur. The rich valley lands, just crossed, widen into a vale, at the foot of the steep; and form the foreground of the prospect. The middle ground, an extent of rich marsh lands, relieved by well wooded rising grounds; the first distance, a broad view of the Bristol Channel, with the Holms rising distinctly out of it; the Welsh mountains towering high in the offscape.

Near this proud point, a lime kiln is burning stones of a redish cast; similar to those observed on either side of the Broadfield Hill.

Continue on these high uneven grounds; when, surely, a more level line might be chosen. See a narrow estuary (the mouth of the Axe) in a striking point of view; between two high-rising grounds, on the coast, that hide the Bay of Bridgewater: the country, which is now fast narrowing between the Mendips and those high grounds, appearing to be of a rich, vale-land description.

Pass, on the left, numerous quarries or superficial mines;—many men seen among them, and meet others on the road (the day closing in) with their clothes covered with dust, or dirt, of an orange-colored hue. (Lapis calaminaris works.)

The

65. NORTH SOMERSETSHIRE.

The high steep face of the Mendip Hills is now seen at hand; and is, here, bringing into a state of cultivation: the soil evidently of a superior quality. Fine crops of turneps hang on the steep; even to the very top!

Continue clambering over the feet, or toes, of the Mendips! and, at length, after a long, but not uninteresting stage*, reach Cross Inn:—*full* of company! Two commissions of drainage, and an auction for a considerable landed estate: not a room, a bed, nor even a chair, unoccupied.

At Axbridge, too (a small market town), every bed is bespoke!

Found a comfortable one, unexpectedly, at the village of Chedder; the very point I wished to gain!—The dairy and the cliffs of Chedder being particular objects of my excursion.

CHEDDER DAIRY.

October 30. The dairy of Chedder, heretofore celebrated, coevally with, or perhaps priorly to, those of Glocestershire and Cheshire, no longer retains its former preeminence, in the dairy District of North Somersetshire. There are, at present, other parishes, situated near the feet of the Men-

* The length of the journey about thirty miles.

dip Hills, that claim a degree of excellency, equal, at least, with that of Chedder. 65. CHEDDER DAIRY.

In the day of its celebrity, it was usual, and the custom still prevails more or less among small dairy farmers, to unite the products of two or more dairies; in order to form cheeses of larger size than could be effected by the milkings of a single dairy:—cheeses of extraordinary, and perhaps unprofitable bulk (requiring some years to ripen them) being the result of this practice; which has likewise been, time immemorial, I believe, the established practice of Cheshire; situated in a far distant part of the Island; while in the intervening Districts of Glocestershire and the Midland Counties, no such custom, I apprehend, has ever been established.

The present fashionable produce of the dairies of Chedder and its vicinity, appears to be that of LOAF, or what is provincially called "truckle" or "trundle," CHEESES; similar to those which have been made, for some time past, in NORTH WILTSHIRE (see GLOCESTERSHIRE, Vol. II. p. 161), whose practice, in this respect, may have been derived from the Chedder District of Somersetshire.

The

65. The season of making being now nearly over, I had the less opportunity of viewing, in detail, the Chedder practice. I nevertheless was favored with the inspection of one dairy; which tho not of the largest size, may, I believe, be considered as inferior to none, in accuracy of management. I shall consider it as a fortunate circumstance, if, before I speak, generally, of the English dairy, I should be favored with an opportunity of learning the particulars of Mrs. GILLING's practice.

CHEDDER DAIRY.

CHEDDER CLIFFS. The CHEDDER CLIFFS. These stupendous rocks form a natural curiosity of considerable magnitude and effect. They have evidently, at sight, been occasioned by a rent of the entire face of the Mendip Hill; here, several hundred feet in height above the level of the marshes which approach its foot: the fissure extending, back, away from the brink of the steep, into the body of this mountain height.

This extraordinary chasm is widest at the foot of the steep; narrowing upward; until it merely admits of room for a carriage road*.

* At present it is only a road of communication between the lowlands and the hills. But it is in contemplation, I am informed, to make use of this chasm, as a

It is irregularly winding; each side being toothed, or serrated; the indentures evidently corresponding with each other; especially toward the upper part of the cleft. The sides are nearly, or in many parts quite, perpendicular; and, in some, of immense height. In one place, below the midway of the ascent, the face of the rock, bare, firm, almost smooth, and perpendicular, has been measured; and is said to be of a height, which, to the eye, appears to be incredible. The rock is uniformly calcareous; a dark-grey, or liver-colored limestone, and, apparently, of great purity: a valuable material, of which, it is more than probable, this elevated quarter of the Mendip Hills is uniformly composed †.

65. CHEDDER CLIFFS.

This chasm furnishes the geologist with an interesting subject of study. The manner in which

mean of communication between Bristol and Bridgewater. It lies not only in the line, but in the midway, between the two towns. There is one part of it which is at present too steep for a public road; but, by labor, it may be very much improved. And a straight road across the marshes, in that line (if practicable), could not fail of becoming highly beneficial to their proprietors.

† It resembles, in contexture and general appearance, not only the stone of Broadfield Down, but that of the Eastern extremity of the Mendip Hills. See page 102.

65. CHEDDER CLIFFS.

which it was formed is difficult to be ascertained. From the almost nakedness *, rawness, or apparent freshness, of the surface of this dry rocky dingle (for such and such only it is), we are led to conceive it to be the result of some partial agitation of the hill, since it took its general form and position. But those circumstances perhaps may be better explained, by the firmness and steepness of the rocks, and by the bleakness and *dryness* of their situation.

What appears to me by far the most interesting fact, belonging to this extraordinary rent, is that of its giving vent to a copious stream of water;—a brook of considerable magnitude;—which rises at the foot of the steep—within the chops of the chasm!—rising up, through numerous apertures, sufficiently to furnish a supply of water to work a flour mill, and one or more paper mills, immediately at its source. The rent, probably, reaches some distance—perhaps miles, within the body of the hill; and collects the absorbed waters of rains, on either side of it; conducting them to this easy outlet.

* A few shrubs, or rather trees in a shrubby state,—as the yew, beech, hornbeam, white leaf, &c. and a variety of rock plants, have got foothold, on the shelves, and in the few crevices of the rocks.

65. CHEDDER CLIFFS.

If, either on the Southern side, or at the foot of the Western steeps of the Mendip Hills, the dry disused channel of a river, or brook, similar to that of Chedder, can be discovered, it may with much reason be concluded that the Chedder cliffs have been rent asunder, since the general formation of the Mendip Hills: otherwise, it seems reasonable to suppose that their present form is coeval with that of the surface of the adjacent country. But this by the way. The waters which now find vent at the surface, through this chasm, may once have passed off, subterraneously, to the neighbouring sea. For general remarks on subterraneous waters, see TREATISE on LANDED PROPERTY.

NORTH SOMERSETSHIRE.

THE narrow line of country that lies between the feet of these Southern steeps, and the extended marsh lands, or sedgemores, which fill the wide space that separates the Mendip from the Poldown Hills,—situated some ten or twelve miles asunder,—is nearly uniform, in soil and surface. In the neighbourhood of Chedder, the road, which leads from Axbridge toward Wells, runs at about half a mile's distance from the foot of the steep. On the upper side of the road, the soil

65. NORTH SOMERSET-SHIRE.

soil is strong red loam: in some places, as red as ochre. On the lower side, the marshes, which are here composed of fat, redish, clayey soil,—partaking of the nature of the adjoining lands that have aided in their formation,—reach nearly up to the road. But nearer Axbridge, a low stage of rich brown land is observable; similar to that of the valley which was crossed between Broadfield Down, and the Western front of the Mendip Hills. Eastward of Chedder, the red land shoots away from the hills; the road, there, rising, and passing over this fertile tract.

The produce of these valuable lands is chiefly, I believe, that of the dairy,—namely, Chedder cheese; with a portion of arable crops. In the immediate neighbourhood of Axbridge (on the brown land just noticed), the remains of a common field are seen:—the only instance of the kind, observed, in this excursion. Some tall, wide-planted orchards here meet the eye; and, what is new to me, rows of *apple trees* standing on the *borders* of fields; some feet distant from the fences; not in, or close to, the hedgerows; as they are in the Southern parts of this county. A little brushwood is seen hanging on the lower parts of the steeps: but they are too

freely exposed to the cutting blast from the Southwest——sweeping across the wide marshes, without a break, until they reach these cliffs—to produce wood, I apprehend, of any great height or luxuriance. 65. NORTH SOMERSETSHIRE.

In a GENERAL VIEW of NORTH SOMERSETSHIRE, the DAIRY is evidently a prominent, if not the principal, object of its husbandry.

Yet the sizes of dairies are not large. Eight or ten cows, I understand, make the ordinary size. But there are some few of higher number. I observed one of fifteen or twenty.

The breed or description of cows has been more than once mentioned in the travelling notes. In the Axbridge quarter, I observed not only cows, but some grazing, and one instance of working, oxen, with white spines. There is not the least trace, here, of the red breed of Devonshire and the West of Somersetshire: they are evidently the same party-colored kind that are seen on the Eastern side of the county (see pages 103, 117, and 329). In evidence that they are not reared in this Northwestern District, I did not *observe* a single instance—not even an individual—of young cattle, in travelling thirty miles within its area! Yet it is not probable, seeing the

65. NORTH SOMERSETSHIRE.

number of cows which the District contains, that the whole should be bought in: and the young stock may, now, be upon the hills, or in common marshes, away from the road.

The working oxen, observed, were few: the animals of draft appearing to be, mostly, an inferior kind of horses.

CROSS INN to BRIDGEWATER.

(Over the Marshes.)

(Sixteen Miles.)

THE SEA MARSHES.

October 30. Trace the foot of a steep, which here rises near the margin of the marshes. A lime kiln and quarry, on the face of the hill; which is a branch or detached ridge of the Mendips; partially cut off from the main body, by the pass which formerly, it is probable, gave rise to Axbridge; and, more recently, to *this* line of road, between Bristol and Bridgewater.

Turn short to the southward, and enter the marshes; leaving the high lands, stretching away, westward, toward the Bay of Bridgewater.

What a boundless extent of rich marsh lands! The eye, at least, does not descry

65.

THE SEA MARSHES.

the *surface* to its farthest bounds; doubtlessly, owing to its water-formed convexity.

This valuable tract of land is here appropriated; being divided into well sized inclosures, separated by water fences; as the Romney, the Yarmouth, and other wide tracts of marsh lands are: parallel drains being cut through the areas of the inclosures. The soil darkly colored; and apparently of a retentive quality: fine close silt.

Cross the river Axe. Barges and coal yards, below the bridge.

Still the same extended flat of rich grazing grounds: mud banks overgrown with luxuriant herbage. And still the areas of the inclosures are drained, by lateral trenches; with the surface of the ground swelling between them; having somewhat the appearance of wide flat ridges (or water-meadow beds ill laid up);—with deep interfurrows: an appearance of marsh lands, which I have not before remarked.

Barren cows and sheep are, at present, the prevailing stock.

Many straggling thorns, of size, are seen scattered over these marshes: seemingly, the remains of live hedges.

A gentle swell of land is now perceived on

65. THE SEA MARSHES.

the left; rising tamely above the level of the marshes: apparently, a natural rising ground, situated between the Axe and the Brue.

The road across these marshes is very good: well formed; with a deep, water-fence drain, on either side; and with an ample supply of hard stones, *broken very small*, lodged in readiness to keep it in repair;—a most commendable practice.

What a breadth of black unctuous lands! now covered with grass, wearing the appearance of gross wheat in the spring.

A few plots of wheat stubble are seen, by the side of the road; in narrow West-of-England ridges. A rich, but dirty, dreary country!

Pass a small common, or green; with some small sheep; and a few disfeathered geese, —looking piteously melancholy! Yet the operation, we are told, is not barbarous; nor offensive to them.

A tall conical hill makes boldly, ahead; in a boundless sea of marshes.

Many scattered habitations, in these central parts of the flat: some decent farmers' or graziers' houses. What a land to live in! especially in winter.

A large farmstead, near the road:—five corn stacks and four hay stacks?

Some good red oxen, fatting: the first observed. 65.

THE SEA MARSHES.

Still a continuation of black, or dark-grey, soil and substratum. Some very stiff, cloddy ground, in a state of fallow.

An instance of plowing with two oxen, abreast: a *man* driving them!

"Lodgings to let"—in a marsh! perhaps for laborers.

Land on the foot of BRENT HILL; and wind along its skirts. A beautiful hillock: —once, no doubt, a beautiful island.

Much grass now in the marsh lands round this insulated hill. And many dairy cows now in them *. Few or no grazing cattle are seen in them, at present. Leave

* After much enquiry, respecting the large, rich, close-textured, and highly flavored cheese, which is met with in the principal inns, in Somersetshire, and which, I believe, is sometimes called "BRIDGEWATER CHEESE," I have been informed, that it is the produce of the marsh lands, in this quarter of the county.

These lands are not only *rich* but *cool*; and the herbage, not only *old*, but chiefly consists of *blade grasses*; with few flowers or odoriferous herbs, to raise the essential oil which is so mischievous in the manufacture of cheese. Hence, the closeness and evenness of its texture. It has always appeared, to me, to be by far the most valuable species of cheese, this Island produces. If it were known, in London, under any specific name (which I

65. THE SEA MARSHES.

Leave the land; and launch, again, into a sea of marshes, right and left.

A group of sheaves of hemp, near the road. Some plots of arable lands:—the crops wheat and potatoes.

Some of the marsh lands, in this quarter, have been mown. The grass now pale and sickly,—compared with that of the pastured grounds *.

The cross roads and driftways are of the natural soil—mud! even now, poached to the knees.

Some hedged inclosures; and more arable lands. Wheat ridges adjusting, by hand, as in West Devonshire.

Many buildings—of bricks and tiles.

See masts of small vessels on the right: and cross the Brue, at High-Bridge †;—to which the river is navigable. And, presently, cross a very deep channel, or cut: doubtlessly, a drain to the moors. Immense mounds of clean white sand, thrown out

cannot find it is), it would doubtlessly sell at a high price; and become a profitable article of produce, to the occupiers and proprietors of these lands.

* In the leases for these lands, the tenants, I understand, are generally restricted from mowing them.

† A weekly market is here held, for marsh stock.

65.

THE SEA MARSHES.

of it: no doubt, the sands of the estuary or bay, into which the sea flowed; before it was silted up by the alluvion which now forms the surface of the marshes.

More hedged inclosures—of rich grass land; with elm trees, and orchards. Nevertheless, still an extensive flat on either hand. Grass, now, evidently growing!

A village and placelet; in this aguish situation.

"Turf," or marsh peat, appears to be the universal fuel.

Now water fences, again; with the ragged remains of hedges. Some short reed in a water fence: the first observed?

A dairy of good red cows, milking, in the marshes: the first seen, in this excursion. And meet a waggon with six good oxen; mostly red.

Approach a rising ground on the right; and touch upon *land*, again, at Poulet.

Turn to the left, nearly eastward! leaving the direct line to Bridgewater. See the Parret on the right, at hand.

Dip, again, into a branch or bay of the marshes, bordered with hedges and elm trees, toward the river. More red dairy cows appear.

65. Reach the foot of the Poldown Hill; and leave the marshes:—twelve miles from Cross; and four to Bridgewater.

POLDOWN HILL. Ascend, by stages, this high arable ridge; and command a broad full view of the marshes passed over;—with the Brent Hill, or Island, rising in the midst of them; with the wooded rise, already noticed, between the Axe and the Brue, on the right; and with the Mendip Hills, and the sea, in distance.

Bend over the ridge, and drop steeply down into another extended flat of naked marshes! the Western point of King's Sedgemore.

VALE OF BRIDGEWATER. Join the Bath road, at right angle, near the foot of the hill, and turn toward Bridgewater.—What an angular route. Why cross the hill? Why not pass the end of it, by a straighter line?

The soil of this flat of marshes or "moors" appears to be of a singularly fertile quality. The color dark, but with a tinge of redness: a sort of liver color. The stock,—red cattle; which, here, appear to be in full possession.

Approach Bridgewater; between well hedged inclosures and hedgerow timber: the surface being, in the nature of alluvious deposits, higher and drier toward the river.

Cross the Parret, by an iron bridge, "cast at Colebrookedale, in 1795;" passing many vessels of size, in a very commodious river harbor, below the bridge; and enter Bridgewater *. 65.

VALE OF BRIDGEWATER.

General

* Bridgewater to Bath. Cross the point of marsh lands, last mentioned, and ascend the Poldown Hill, which forms a narrow hog's back;—the road leading along the spine, in a very singular manner. Extensive views on either hand.—This extraordinary line of road continues for several miles; the narrow ridge on which it runs, having, in some parts, the appearance of art.

Descend, and cross a "moor,"—of a mean quality, to Glastonbury:—seated on the broken point of a peninsula of high land; being nearly surrounded by moors and marshes. While these were in a state of morass, which they probably were, at the time the monastery was founded, it must have been a place of great security.

Between Glastonbury and Wells, the road crosses an extent of fertile marsh lands; rich grazing grounds:—appropriated and divided, as those between Axbridge and Bridgewater: these forming the Eastern point, or head, of the sea marshes.

The situation of Wells is peculiarly fine;—at the feet of the Mendip Hills;—on a fertile stage of land, that rises above the marshes, and shelves towards the South; being skreened from the North and East, by the hills; which are, here, of inferior height, compared with those of Axbridge and Chedder.

The country between Wells and Bath is a continued range of uplands;—an extent of limestone heights:—heretofore,

65. IMPROVEMENT OF MARSHES.

General Remark. The marsh lands or moors of Somersetshire form a voluminous subject of study for the improvers of low, water-formed lands. The sea marshes, through which the Axe and the Brue have their courses, have been long in a state of appropriation, inclosure, and public drainage. Many valuable practices, and points of management, must,—by the inventive faculty of the human intellect, when exercised in the prosecution of great undertakings,—have been hit upon and established. And the sedge-mores of the Vale of Bridgewater, which have been appropriated and improved, in these latter days of exertion and enterprise, by men of experience, and with former works of a similar nature before their eyes, can scarcely fail to exhibit some valuable improvements of former practices.

Every thing which met the eye, at the time of my crossing the Axe-and-Brue marshes,

heretofore, an open-down passage; but now principally inclosed. The substructure, however, tho perhaps uniformly calcareous, is formed with stones of very different textures: the Mendip Hills being composed of the hard, marble-like stone, afore mentioned; those towards Bath, of the soft, granulous, calcareous freestone, which is common to its environs, and the extended range of the Cotswold Hills.

strongly evidenced their being in a good state of drainage (tho perhaps not complete); and under judicious management. The only improvement which struck me, in that cursory view, was that of affording some shelter to pasturing stock, in severe weather *. 65. IMPROVEMENT OF MARSHES.

If, in the case under notice, the numerous FOSSE FENCES, with which it is intersected, are useful as *receptacles* of *land waters*, when their outlets into the sea are interrupted, COPPICE MOUNDS may be run along their sides; or may be raised in the areas of the inclosures;—across the wind, or winds, by which the stock is most liable to be annoyed.

BRIDGEWATER TO TAUNTON.

(Twelve Miles.)

OCTOBER 31. Leave Bridgewater: a large *marsh* town; supported by its market and port. VALE OF BRIDGEWATER.

Touch upon the bank of the Parret, slowly moving in a deep narrow channel (the tide out). The banks, or sloping sides, of the channel, slimed over with silvery mud; doubtlessly, left by the tide.

Bend

* See SOUTHERN COUNTIES, for proposed improvements of ROMNEY MARSHES, in that respect.

65. VALE OF BRIDGE-WATER.

Bend away from the river, and enter a flat of rich grass land; with many orchard grounds. The soil redish brown; as on the East side of the Parret. What a length of foggage! The soil fertile, and probably well manured. Much compost well mixed, by the sides of the road. (One mile.)

Leave the marsh lands, imperceptibly; landing on a gently rising ground: an elm-tree passage.

A wide vale District discloses, right and left. Rich grass lands; and red cattle.

The Quantoc Hills rise high, on the right. Still a fine vale passage. The soil a strong red loam. Buildings of red cob and thatch. (Two miles.)

Pass eight red oxen, in yoke, and see eight more, in pasture: of the Vale-of-Taunton breed.

Rise a higher swell; and keep on its flattened top. Pass a large arable farmstead. Six oxen in a cart: some of them pied. The country in a state of mixed husbandry, and orchard ground: the vale lands extending widely, on the right.

Pass through North Petherton,—a large and finely situated village—of brick and tiles. The tower of the church beautiful. (Three miles.)

Still, a widely extended rich vale District. The substratum a depth of loam. Some very fine, blood-red, grazing oxen. Many stubble turneps: this year, ragged and of little value. No well cultivated crops, of size, observed. (Four miles.) 65. VALE OF BRIDGE-WATER.

Rise a still higher stage of land: the substructure a sort of red rock. The land, here, weaker. Furze on hedge banks: the first observed in this excursion. (Five miles.)

The Black-down or Neroche heights break, forward.

Cross a dip of charming red land. Good oaks and ashes, in hedgerows.

Enter upon a long rise. The substructure redish laminated rock: the soil growing paler, and apparently weaker, with the ascent.

Overtop the swell. The VALE of TAUNTON opens. VALE OF TAUNTON.

Descend steeply towards it. The same red shellet, or rotten shaley rock, is seen in the hollow way. Q. incumbent on slate?

Reach a stage of gently shelving, free-working red land. Four oxen breaking up ley ground. (Three miles from Taunton.)

Continue to descend, gently, into the vale. A large field of clean turneps:—the first observed in Somersetshire, this journey. Hedge elms

65. elms and many pollards. Still rich, lightish, loamy soil: charming turnep-and-barley land. At present, much wheat sowing: apparently, the height of seed time. (Two miles.)

VALE OF TAUNTON.

Cross the Tone:—here, divaricating in two streams. Many orchards in the base of the vale: and several instances of apple trees, on the borders of fields; as in North Somerset.

Join the London road (by Langport, Somerton, &c.), one mile from Taunton;—on a flat of rich light loam: flax in sheaves, on grass: the same valuable level of land reaching to Taunton.

SOMERSETSHIRE.

COUNTY OF SOMERSET.

From these and former examinations, the lands of this singularly productive county naturally divide into the following Districts.

1. The Vale Lands, of North Somerset; including the District of Chew, and the marsh and vale lands of the coast.

2. The Mendip Hills, and other Limestone Heights, in the Northern parts of the county.

3. The Sea Marshes, above described.

4. The Vale or Valley of Glastonbury;

65.

COUNTY OF SOMERSET.

which accompanies the BRUE, from the sea marshes, to its source: its rich banks being bounded, on the North, by the Eastern extremity of the Mendip Hills; and, on the South, by the blue-limestone heights, repeatedly mentioned.

5. The VALE of TAUNTON; and other valley lands of WEST SOMERSETSHIRE *.

6. The VALE of BRIDGEWATER;—which extends from the sea coast, to Langport; and widely on either side of the Parret: being bounded, on the West, by the Quantoc Hills; on the North, by the sea, Poldown Hill, and other rising grounds that separate it from the valley of Glastonbury; on the South, by the limestone hills of Curry, before mentioned; and, on the East, by the open downs, between Langport and Somerton: including an extent of rich marshes; with large tracts of

* The more Western extremity of the county, including part of the forest of EXMOOR, the BRENDON HILLS, and the more habitable parts of the WESTERN COAST, I have not yet had a favorable opportunity of examining, in detail; tho, from the Dulverton, the Quantoc, and the Black-down, hills, I have been able to form a sufficient idea of it, to say, that, viewed as a District, it is the most, and almost the only, unproductive part of Somersetshire.

65. COUNTY OF SOMERSET.

of natural vale lands of the most fertile quality; together with the limestone banks which in a manner surround them; altogether forming a passage of country, which, when wholly appropriated, and sufficiently freed from surface waters, will be one of the most valuable Districts, of equal extent, in the Island.

7. The VALE of ILCHESTER; described, aforegoing, in Minute 58.

8. The range of LIMESTONE LANDS, which embrace the Vale of Ilchester, on the South and East;—And

9. The VALLEY of FROME; which is naturally a branch of the extensive VALE LANDS of WILTSHIRE.

A

LIST OF RATES

IN

WEST DEVONSHIRE,

(IN 1796.)

BUILDINGS.

BLUE Slates, at the quarry, 3s. 6d. a thousand; for the ordinary rough undressed Slates, great and small: running from four to twelve inches wide, and eight to eighteen inches long, when dressed. The large Eaves Slates —provincially "Rags"—some of them two feet square, when dressed, are sold at 2s. 6d. a dozen; rough, at the quarry.

The price of "dressing," or cutting Slates into the required form, is 20d. a thousand. See note, Vol. I. page 62.

The entire workmanship, of dressing, pinning, pins, and laying on, in mortar, is 6s.

a square, of 100 square feet: without pins, 5s. 6d. a square.

A square of Slate roofing (100 square feet) takes about a thousand Slates. Thus the cost of a square is 9s. 6d. beside carriage. The estimated duration fifty years.

Oak timber—15d. a foot.

Ash timber—1s. to 14d. a foot.

Lime—5d. a bushel.

Masons' wages—18d. a day, and a quart of cider.

Carpenters' wages—the same.

Woodland Produce.

Cordwood—see page 95.

Rough Topwood—prov. "Sheedwood" (seven feet long, and the thickness of the arm, to that of the thigh)—3 or 4s. each 100.

Spray Faggots (four feet long and three girt) 16d. a dozen to the King's bakehouses, &c.

Husbandry.

The yearly wages of servants are,—

Prime Men Servants 8l.

Second 6l.

Women Servants 3l. to 3 guineas.

Boys 9d. to 15d. a week.

Day wages:—in winter and spring, 1s. a day; with a quart of cider, to constant laborers. In hay time, 1s. with more liquor. In harvest, 1s. with full board. See also page 111.

Mowing meadow grass—2s. Clover—20d. and Corn 18d. the customary acre*; with three or four quarts of cider, each acre.

Reaping Wheat—4 or 5s. an acre, without binding it.

Thrashing Wheat (in the Devonshire manner see page 179.)—1s. a "bushel" of two Winchester bushels; including the making up and binding of the reed.

Day's work of a pack horse—1s.

Plowing ley ground—6s. an acre.

——— broken ground—4s. 6d. an acre.

Agistment of a cow—2s. a week.

——— of sheep—2d. or 3d. a head.

Agistment

* CUSTOMARY ACRE. This is calculated by perches of eighteen feet square; being proportioned to the statute acre, nearly as six is to five.

Agistment of a sheep for the winter——4s. from October or November to Lady-day: an extra price, which is owing to the facility of keeping sheep, in summer, on the common and forest lands.

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THE END.

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